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**To make no mistakes is not in the power of man; but from
their errors and mistakes the wise and good learn wisdom
for the future.**
(Plutarch)

Newsletter of the Hellenic Society of Archaeometry

- July 2020 -

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ΣΥΝΕΔΡΙΑ - CONFERENCES/WORKSHOPS

7TH BALKAN SYMPOSIUM ON ARCHAEOLOGY, SEPTEMBER 22-25, 2020, UNIVERSITY OF WEST ATTICA, ATHENS, GREECE

Dear Colleagues,

We really hope you and your relatives are all well and healthy during this unprecedented period.

The Organizing Committee of the 7th Balkan Symposium on Archaeometry, after evaluating the everyday progress of the Covid-19 pandemic and after extended discussions with the Senate of the University of West Attica (host Institution), the Greek Ministry of Culture and all the relevant Greek authorities, is happy to announce that the 7th BSA will take place on September 22-25, 2020.

We want to reassure you that we are taking all the appropriate measures in line both with the governmental and the World Health Organization guidelines and we all feel that this conference will be safe and successful.

As we are well aware of the concerns that many of the participants may have, we offer the additional option to attend the conference remotely. Specific guidelines regarding both oral and poster remote and on site presentations will follow in the forthcoming circulars. Additionally,

- The conference will be held at the main auditorium of the University of West Attica (Campus II) taking into consideration all regulations set by Greek [National Public Health Organization \(appropriate social distancing, availability of masks and disinfectant liquids, proper ventilation etc.\)](#).
- Each participant will be informed for the specific guidelines prior to their arrival by email from the Symposium Secretary. The participants attending the conference on site will have to sign the respective legal documents (form of consent) following the GDPR guidelines.
- Due to the several delays caused by Covid-19 pandemic, we extend the important dates for the deadlines: The **Abstract Submission** deadline is extended to **31st of July**.
- Each participant will be notified by the **15th of August (Notification of Acceptance)**
- The **Early Bird Registration** is extended to **20th of August**.

The registration fees have been changed accordingly:

		Full	Student
On site	Early (before 15/08)	200 €	100€

	Late (after 15/08)	250 €	120 €
Remotely	Early (before 15/08)	150 €	70 €
	Late (after 15/08)	180 €	90 €

We are really looking forward to welcoming you in Athens the forthcoming September.
The Organizing Committee of the 7th Balkan Symposium on Archaeometry.

ΘΕΣΕΙΣ ΕΡΓΑΣΙΑΣ/ΥΠΟΤΡΟΦΙΕΣ –
JOB VACANCIES/FELLOWSHIPS

CALL FOR APPLICATIONS: DAI-ANAMED
JOINT POST-DOCTORAL FELLOWSHIPS IN
ENVIRONMENTAL ARCHAEOLOGY

The Deutsches Archäologisches Institut, Abteilung Istanbul (DAI) and Koç University's Research Center for Anatolian Civilizations (ANAMED) invite applications for newly established

DAI-ANAMED Joint Fellowships in Environmental Archaeology to support Post-Doctoral scholars.

The fellowships will support research on the environmental archaeology of Anatolia using approaches such as archaeobotany, anthracology, environmental modelling, and related specializations. The primary responsibility of fellowship holders will be to conduct work relating to a longitudinal research project titled "Humidity & Society: 8,500 Years of Climate History in Western Anatolia." Using Neolithic through Classical period materials from excavations associated with the DAI and Koç University (e.g., Barcın Höyük, Kaymakçı, Pergamon), the project aims to conduct high-resolution stable isotope carbon analyses of ancient wood and seed samples to estimate past relative humidity and water availability and thus to understand past climatic conditions for agricultural and pastoral activities.

ANAMED, located in Beyoğlu, İstanbul is dedicated to fostering research on the archaeology, art, heritage, and history of Anatolia through fellowships, exhibitions, symposia, publications, and library collections and services. Selected post-doctoral fellows will work in ANAMED's environmental archaeology laboratory, help develop reference collections therein, and run hands-on workshops related to the fellowship. Fellows must be resident in Istanbul but might spend up to two months elsewhere in Turkey carrying out field work or on-site research related to the fellowship.

Successful applicants will have a strong combination of the following qualifications:

PhD in a related specialization (i.e., archaeology, anthropology, ancient history and/or related social sciences and humanities fields) granted after 15 September 2015;

Demonstrated expertise in archaeobotany, anthracology, environmental modelling, isotope analyses in archaeology, and/or related specializations;

Demonstrated interpersonal, organizational, and collaborative skills for working within teams; Ability to work independently and to prioritize multiple, simultaneous projects; Ability to communicate effectively (written and spoken) in English with project-related researchers as well as Koç University faculty, administration, staff, and students; Turkish and/or German is preferred as well;

Flexibility in work schedule, as needed; and No military obligations.

The successful applicant will be provided a fellowship stipend commensurate with experience, health benefits, a research account, and assorted other benefits.

The successful applicant will be ready to start the one-year fellowship on 21 September 2020. Renewal thereafter is contingent on project progress and available funding.

APPLICATION MATERIALS & SUBMISSION

Required application materials include;

(1) an application letter detailing the applicant's relevant experience and motivation to win a fellowship; (2) a Curriculum Vitae; and

(3) the names and emails of two referees familiar with the applicant's experience. Up to two relevant publications or writing samples are welcome, also. Applicant materials must be submitted via email to anamedapplication@ku.edu.tr. Application files should be saved as MSWord or PDF files, with filenames containing the applicant's last name.

Questions should also be addressed to anamedapplication@ku.edu.tr.

Application review will commence on 15 July 2020 and continue until the position is filled, with an estimated fellowship start date of 21 September 2020.

ΑΝΑΚΟΙΝΩΣΕΙΣ - ANNOUNCEMENTS

DESIGN | ARTS | CULTURE (DAC), CALL

FOR PAPERS AND PORTFOLIO

SUBMISSIONS

Time, one of the dynamic aspects of existence and human creation, embodies duration and entails change. The decay that it imposes on matter reveals [the entities of] time and space as entangled, distinct and indivisible forms of being. Whether the ruin represents a trauma or a sign of the imposition of nature on human traces, constitutes a bridge of visual mediation and in many cases a carrier of "hidden pleasure".

George Simmel (1958: 380-381)[1] in his essay "The Ruin" describes this fascination towards decay as a dominating feeling that attracts us to a ruined building. The spectator, be it a flâneur, a pilgrim, an observer of historical evidence, a researcher of the act of ruining, an artist, experiences nostalgia, memory, continuity, anamnesis, artistic inspiration, attraction, awe, or the distancing from the uncanny. [2]

The first issue of Design | Arts | Culture (DAC) focuses on the topic of "The Entrancement of Ruins", inviting academic teachers, researchers, designers and artists to contribute in the wake of this [a] discussion.

[1] Simmel, George, 1958. "Two Essays: The Ruin." *The Hudson Review*, 11(3), 371-385. doi:10.2307/3848614.

[2] Freud, Sigmund, 2003 [1919]. *The Uncanny (Das Unheimliche)*. MClintock, David, (transl.) London: Penguin books.

About the Journal

The International Journal DAC is a digital open access and peer-reviewed multi-disciplinary journal, published by **Design, Interior Architecture and Audiovisual Documentation lab of the Faculty of Applied Arts and Culture of the University of West Attica** Greece in cooperation with the: **University of Nicosia** Cyprus, **ESAD Porto** Portugal, **ESD Madrid** Spain, **National University of Arts Bucharest** Romania and **Academy of Fine Arts Gdansk** Poland. The journal is hosted in the open access e Publishing platform of the **National Documentation Centre of Greece (EKT)**.

This journal is biannual (with regular and from time to time special issues) and publishes research articles, projects and portfolios, as well as book reviews and student works. It aims to provide an academic forum for sharing and connecting ideas, projects and findings about design, applied arts and culture.

This journal provides immediate open access to its content on the principle that making research freely available to the public supports a greater global exchange of knowledge.

All articles, portfolios and book reviews will be double blind peer reviewed. The official language is English. All the published works are licensed under the Creative Commons

Attribution 4.0 International License. This permits anyone to copy, redistribute, remix, transmit and adapt the work provided the original work and source is appropriately cited.

This journal does not charge submission or publication fees.

Useful links:

<https://designlab.uniwa.gr/>

<https://ejournals.epublishing.ekt.gr/index.php/DAC/issue/view/1418>

<https://ejournals.epublishing.ekt.gr/index.php/DAC/issue/viewIssue/1418/425>



GOOD NEWS FOR THE JOURNAL MEDITERRANEAN ARCHAEOLOGY AND ARCHAEOLOGY (MAA)

Dear Editors, Members of Editorial Board, Editorial Assistants,
Dear Authors,

I am pleased to convey you the good news for our Journal (www.maajournal.com).

From 2019 it has been selected in 5 subject categories.

So far MAA was selected to cover 2 Subject Categories, those of ARCHAEOLOGY (Arts & Humanities) Q1, and ARCHAEOLOGY, Q2.

From 2019 it includes also CONSERVATION Q1, HISTORY Q1 and ANTHROPOLOGY Q2.

(<https://www.scimagojr.com/journalsearch.php?q=19600162008&tip=sid&clean=0>)

I thank you for the support.

Onwards!

Ioannis Liritzis

Editor-in-Chief

INTERNET SITES

SAMARK-LAND PROJECT

At <https://www.orientlab.net/samark-land/> is posted “Samarkand and Its Territory,” Samark-land, the geospatial platform of the Uzbek-Italian Archaeological Project.

Since 1999 the activities of the Uzbek-Italian Archaeological Project – UIAP “Samarkand and Its Territory” have been devoted to the recovery of traces of ancient human activities in the southern part of the region, in order to reconstruct the major settlement patterns and the territorial transformations occurred in the area.

The UIAP is based on a 5-year Protocol of Scientific Collaboration between the Department of History and Cultures, Alma Mater Studiorum-University of Bologna and the Samarkand Institute of Archaeology – SIA, National Center of Archaeology, Uzbek Academy of Sciences.

Specific research topics include: archaeological map of the anthropic evidence in the southern Samarkand oasis; geoarchaeological investigation of the ancient irrigation systems in the cultivated floodplain; ethnoarchaeological study of the semi-mobile pastoralism in the steppe; identification of main paths and Silk Road local routes. The current website – actually a work in progress branching from the OrientGIS (www.orientgis.net) project – presents in a scientifically complete fashion the elaborations and studies carried out for characterizing the landscape of the Samarkand Oasis.

The UIAP “Samarkand and Its Territory” is directed by Simone Mantellini of the Alma Mater Studiorum-University of Bologna, with the coordination of Antonio Curci, jointly with Samaritdin Suyunov of the Samarkand Institute of Archaeology – SIA, National Center of Archaeology, Uzbek Academy of Sciences. Archival holdings of the expeditions at Samarkand have been the basis for the project and have been georeferenced by the UIAP team. Archive data and literature have been scanned and edited inside the SIA by Timur Ochilov, Margarita Kondrikova, and Zamira Koraeva.

Materials of the site of Koytepa have been kindly provided by Bruno Genito, Department of Asian, African and Mediterranean Studies, University of Naples L’Orientale. Satellite imagery and cartographic materials have been downloaded or purchased and then elaborated and processed by the UIAP team: Enrico Agnolin, Francesca Franceschini, Simone Mantellini, Bernardo Rondelli.

The research website hosting the Samark-land project has been conceived by Nicolò Marchetti (Scientific Editor), with Silvano Bertossa (Web Engineer) setting up the server through PostgreSQL and GeoServer including the current Leaflet tool for the WebGIS, Simone Mantellini (Webmaster) editing and managing the Samark-land WebGIS and Valentina Orrù designing the homepage. The CRANE 2.0 project is gratefully acknowledged for having provided the server on which the webGIS is running.

ΣΧΕΔΙΑ ΚΑΙ ΓΡΑΦΗΜΑΤΑ ΣΤΟ ΣΠΙΤΙ **ΜΟΥΣΕΙΟ ΓΙΑΝΝΟΥΛΗ ΧΑΛΕΠΑ**

Please visit the site: [https://www.youtube.com/watch?v= VY463K4ejw](https://www.youtube.com/watch?v=VY463K4ejw)

BLOGS: GREEK & ROMAN RECIPES

Cook a classical feast: nine recipes from ancient Greece and Rome Bored with banana bread? Whip up a classical feast with nine recipes from ancient Greece and Rome.

Food has been central to social life throughout human history. In the classical world it was part of occasions from religious rites to ostentatious parties. There is plenty of information available on what the ancient Greeks and Romans ate and drank – in written texts and in archaeological finds – which can help us bring their gastronomical creations to life in the 21st century.

Here we have compiled a few recipes from the ancient world, which you can recreate at home to make your own classical feast! These recipes are from *The Classical Cookbook*, by Andrew Dalby and Sally Grainger, which uses Greek and Latin texts to create dishes from Homeric Greece to the Roman Empire.

Starters, sides and snacks

1) Cabbage the Athenian way (vg)

‘Cabbage should be sliced with the sharpest possible iron blade, then washed, drained, and chopped with plenty of coriander and rue. Then sprinkle with honey vinegar and add just a little bit of silphium.

Incidentally, you can eat this as a meze.’ – Mnesitheus, quoted in Oribasius, *Medical Collections* 4, 4, 1

This is a popular recipe among Greek and Roman writers. Oribasius (4th century AD), a well-known doctor of the late Roman Empire, borrowed it from a much older book of dietary advice by Mnesitheus, a medical writer from Athens who lived in the 4th century BC.

Doctors were interested in this dish because it was said to cure headaches and was good for stomach upsets. Pliny claimed if taken before a meal it prevented drunkenness, and if taken after drinking it could cure a hangover!

Whatever its medicinal value, Mnesitheus was quite right about cabbage in honey vinegar being delicious as a starter or side dish and it’s simple to make.

Substitute honey for maple syrup to make this recipe vegan.

Serves 6

Ingredients

- 1 small white cabbage
- 2 heaped tsp chopped fresh green coriander in oil • 2 tsp chopped fresh or dried rue (you can use a bitter herb or spice such as fenugreek seed as a substitute) • 2 pinches asafoetida powder (you can use garlic or onion powder as a substitute)
- Salt

Honey vinegar

- 120g honey
- 2 tbsp red wine vinegar

Method

First make the honey vinegar. Boil the honey and skim it, add the vinegar and reduce a little. Store until needed. Finely slice the cabbage, wash and drain it. Toss with the herbs and 3 tablespoons of honey vinegar and sprinkle with the asafoetida powder and a little salt.

2) Very garlicky garlic cheese (vg)

‘First, lightly digging into the ground with his fingers, he pulls up four heads of garlic with their thick leaves; then he picks slim celery-tops and sturdy rue and the thin stems of trembling coriander... He splashes a grass-grown bulb with water and puts it to the hollow mortar. He seasons with grains of salt, and, after the salt, hard cheese is added; then he mixes in the herbs. With the pestle, his right hand works at the fiery garlic, then he crushes all alike in a mixture... So he sprinkles in some drops of Athena’s olive oil, and adds a little sharp vinegar, and again works his mixture together. Then at length he runs two fingers round the mortar, gathering the whole mixture into a ball, so as to produce the form and name of a finished moretum.’ – Moretum 88–120

This fiery moretum (garlic cheese) is not for the faint hearted! If we take the recipe at face value, it may include fifty cloves of garlic, a pretty potent mixture! But surprisingly good with a fresh warm loaf of bread and a few olives. This is a simple rustic meal, which ordinary farmers would likely have eaten.

The poem Moretum is sometimes attributed to Virgil, author of the Aeneid.

Greeks and Romans used a mortar for grinding and mixing sauces. In this case the farmer would have used a large, coarsely made bowl with a grainy texture that helped to break down the ingredients. If you have a food processor, the effort required to produce the dish is minimal. If, on the other hand, you have to (or want to!) grind by hand you will need a large pestle and mortar.

Serves 6

Ingredients

- 2 heads (20–25 cloves) garlic
- 225g Pecorino Romano cheese
- 1 large handful of coriander leaves
- 2 heaped teaspoons chopped fresh celery leaf • 1 tsp salt • 1 tbsp white wine vinegar • 1 tbsp olive oil

Method

Peel and roughly chop the garlic. Grate the cheese. Roughly chop the herbs. If you are grinding by hand, start with the garlic and salt; break it down to a pulp, then add the cheese and herbs. When you have a smooth mixture add the liquids and mix well. If you are using a food processor, add all the solid ingredients and process until the mixture is

smooth in texture, then add the liquids. Gather the mixture together and chill. Serve with a crusty loaf as a snack.

3) Olive Relish (ve)

‘How to make green, black or mixed olive relish. Remove stones from green, black or mixed olives, then prepare as follows: chop them and add oil, vinegar, coriander, cumin, fennel, rue, mint. Pot them: the oil should cover them. Ready to use.’ – Cato, On Agriculture 119

The recipe from Cato dates to about 200 BC, but olives provided relish and flavouring all through ancient times. The olive tree had been under cultivation in Greece for a thousand years, if not longer, when the Iliad and Odyssey were composed (around the 8th century BC). At classical Greek banquets olives were served in brine, and sometimes, no doubt, they were served as relishes like this.

Cato’s recipe uses cumin, but it can overpower the herbs, so it is listed as optional below. Fennel leaf will not be easy to find unless you grow it yourself, so the chopped root will serve as a substitute.

To make life easier buy good quality pitted olives.

Serves 4

Ingredients

- 120g black olives
- 120g green olives
- 4 tbsp red wine vinegar
- 4 tbsp olive oil
- 1 heaped tsp chopped fennel leaf or finely diced fennel root • 1/2 level tsp ground cumin (optional) • 2 tsp chopped fresh coriander • 2 tsp dried or chopped fresh rue (you can use a bitter herb or spice such as fenugreek seed as a substitute) • 2 heaped tsp dried or 3 tsp chopped fresh mint

Method

Chop the olives roughly and pour on the vinegar and olive oil. Prepare the herbs, chopping them finely if fresh, and add to the mixture. Place the olive relish in a sealable container and pour a little olive oil over the top. At this stage it can be eaten, as Cato firmly says, but it does improve with a few days’ marinating. Try it with pitta bread, accompanied by a sharp sheep’s cheese such as feta.

Mains

4) Honey glazed prawns

This recipe is adapted from various ancient sources – a poem attributed to the Greek poet Philoxenus of Cythera talks about shrimps glazed with honey being served at a banquet, but it does not help in recreating the dish! Fish sauce (for its salt) and olive oil would undoubtedly have been among the ingredients, along with the honey.

Oregano is suggested as the Greeks used it in seafood dishes.

Serves 2

Ingredients

- 225g large raw peeled prawns
- 1 tbsp olive oil
- 2 tbsp fish sauce
- 1 tbsp clear honey
- 2 tsp chopped fresh oregano
- Black pepper

Method

If using frozen prawns, ensure that they are well defrosted and drained. Place the oil, fish sauce and honey in a saucepan and add the prawns. Sauté them gently in the sauce for 2 or 3 minutes until they are tender. Remove with a perforated spoon and keep warm. Continue to cook the sauce until it has reduced by half. Add the chopped oregano and pour the sauce over the shrimps. Sprinkle with freshly ground black pepper. Serve as a first course with a crusty loaf of bread and a simple salad.

5) Roast lamb or kid

‘Marinated kid or lamb: 1 pint milk, 4 oz honey, 1 oz pepper, a little salt, a little asafoetida. For the sauce: 2 fl oz oil, 2 fl oz fish sauce, 2 fl oz honey, 8 crushed dates, half pint good wine, a little starch.’ – Apicius 8, 6, 7

This recipe is from Apicius, a Roman cookery book of different recipes thought to have been compiled in the 1st century AD. This recipe is one of the few in the book that gives quantities, which has led some to believe that this might in fact be an old ancient Greek recipe.

The recipe is particularly good with kid if you can find it but otherwise you can use lamb.

Serves 6

Ingredients

- Shoulder of kid or 1.25 kg leg of lamb • Olive oil

Marinade

- 570ml milk
- 120g clear honey
- 1 tbsp pepper
- Salt
- 1/2 tsp asafoetida powder or 5 drops asafoetida tincture (you can use garlic or onion powder as a substitute)

Sauce

- 8 crushed fresh or dried dates
- 280ml red wine
- 4 tbsp olive oil
- 2 tbsp clear honey
- 4 tbsp fish sauce
- A little cornflour (corn starch)

Method

For best results, you'll want to marinate the meat overnight. Combine the marinade ingredients and leave the meat overnight in the marinade, turning it occasionally to ensure full absorption. At the same time, soak the fresh or dried dates in a little red wine. The next day remove the meat from the marinade, pat it dry, and then roast it in an oven pre-heated to 200°C/gas mark 6, well-seasoned and with olive oil.

The timing should be 20 minutes to each lb (450g) and 20 minutes in addition. When the meat is nearly ready, pound the dates to a pulp and add to the remaining red wine, honey, fish sauce and oil. Bring to the boil in a saucepan and cook out briefly and then thicken with cornflour (corn starch, you can mix with a little water to avoid lumps). When the joint is cooked, remove it from the oven and leave to rest for 10 minutes before carving thick slices and serving with a little of the sauce on the side.

6) Squash/marrow Alexandria style

'Gourd Alexandrian fashion. Drain boiled gourd, season with salt, arrange in a dish. Crush pepper, cumin, coriander seed, fresh mint, asafoetida root. Moisten with vinegar. Add caryota date, pine kernel; crush. Blend with honey, vinegar, fish sauce, concentrated must and oil, and pour the whole over the gourd. When it has boiled, season with pepper and serve.' – Apicius 4, 2, 14

This dish is the sort of simple dinner that Romans would likely have had in bars and restaurants where you could easily while away an evening. We have substituted the gourds that the Romans grew for marrow or squash.

Substitute the fish sauce for soy sauce to make this recipe vegetarian.

Serves 6

Ingredients

- 1 small young marrow or yellow squash
- Salt
- 4 fresh dates, soaked in a little wine • 2 tbsp pine kernels, soaked in a little wine • 2 level tsp ground cumin • 2 level tsp ground coriander • 1/2 tsp ground black pepper • 2 tsp chopped fresh or 2 tsp dried mint • 1/2 tsp asafoetida powder or 5 drops asafoetida tincture (you can use garlic or onion powder as a substitute) • 2 tbsp honey • 1 tbsp defrutum (reduced red grape juice) (you can use 2 tbsp of red wine as a substitute) • 3 tbsp fish sauce • 2 tbsp olive oil • 3 tbsp red wine vinegar

Method

Slice the marrow or squash and boil until al dente (still firm).

Arrange the slices in a baking dish and sprinkle with a little salt.

You will need a pestle and mortar for the sauce. Remove the stones from the dates and put the flesh in the mortar with the pine kernels.

Mash them down to a paste. Transfer to a bowl and add the cumin, coriander, pepper, mint and asafoetida and mix well. Scrape down the mash and add the honey, defrutum, oil, fish sauce and vinegar. Stir into a smooth emulsion and pour over the marrow or squash. Cover with a lid or foil and reheat thoroughly in a pre-heated oven at 180°C/gas mark 4. Serve sprinkled with freshly ground pepper.

Desserts

7) Pancakes with Honey and Sesame Seeds (vg) ‘Let us find time to speak of other cakes, the ones made with wheat flour. Teganitai, as we call them, are made simply with oil. The oil is put in a frying-pan resting on a smokeless fire, and when it has heated, the wheat flour, mixed with plenty of water, is poured on.

Rapidly, as it fries in the oil, it sets and thickens like fresh cheese setting in the baskets. And at this point the cooks turn it, putting the visible side under, next to the pan, and bringing the sufficiently fried side, which was underneath at first, up on to the top, and when the underneath is set they turn it again another two or maybe three times till they think it is all equally cooked. Some mix it with honey, and others again with sea-salt.’ – Galen, On the Properties of Foods 1, 3

It’s amazing how little food changes from one millennium to the next.

When reading the Roman physician Galen’s description of making pancakes, it is hard to remember that he is writing 1,800 years ago!

The early Greek poet Hipponax had written of pancakes ‘drugged with sesame seeds’. This was likely a breakfast meal and one that was possibly sold on the streets of ancient Athens from portable braziers.

These pancakes are thicker than the crêpe-style pancakes familiar to us (more like a blini, or even thicker) and they are served with honey and toasted sesame seeds.

Substitute honey for maple or date syrup to make these vegan.

Serves 4

Ingredients

- 120g flour
- 225 ml water
- 2 tbsp clear honey
- Oil for frying
- 1 tbsp toasted sesame seeds

Method

Mix the flour, water and one tablespoon of honey together into a batter. Heat two tablespoons of oil in a frying-pan and pour a quarter of the mixture in. When it has set, turn it two or three times to give an even colour. Cook three more pancakes in the same way. Serve all four pancakes hot with the remainder of the honey poured over and sprinkled with sesame seeds.

8) Cheesecake (vg)

‘Libum to be made as follows: 2 lb cheese well crushed in a mortar; when it is well crushed, add in 1 lb bread-wheat flour or, if you want it to be lighter, just half a pound, to be mixed well with the cheese.

Add one egg and mix all together well. Make a loaf of this, with leaves under it, and cook slowly in a hot fire under a brick.’ – Cato, On Agriculture 7

Libum means ‘cake’ in Latin. There were many types of Roman cakes from sacrificial cake, offered to household spirits, to farmhouse cake, served hot, and delicate honeyed cake that was served at the very end of an elaborate Roman dinner. The poet Ovid, writing of Roman religious festivals, tells us some tantalising details. He talks of a libum

infused with clear honey – and he traces the origin of these cakes all the way back to mythology, and to the discovery of honey by the god Bacchus.

This recipe is inspired by Cato's recipe but uses honey to make it sweet. You can make a savoury version without the honey by using a salted cheese, such as feta.

Serves 2

Ingredients

- 90g plain flour
- 250g ricotta cheese
- 1 egg
- 2 bay leaves
- 2 tbsp clear honey

Method

Grease a baking tray and place two large bay leaves in the centre.

Beat the cheese until smooth, add the egg and beat again to incorporate it. Sieve the flour, and add two tablespoons to the cheese mixture one at a time, stirring gently and slowly between each addition until they are incorporated. Gather the remaining flour and sprinkle over the mixture and on to the hands before gathering up the soft dough and very gently forming it into a round ball. Do not knead or in any way attempt to blend all the flour fully into the mixture.

Place the ball directly onto the bay leaves. You can cover the cake in an earthenware vessel for authenticity or bake it as it is in a hot oven (200°C/gas mark 7) until golden brown and firm to the touch for

20–25 minutes. Remove from the oven and immediately score the cake across the centre and pour the warmed clear honey into the gap. Serve at once before it begins to cool.

9) Delian Sweets (vg)

‘On Hecate’s Island,’ says Semus in *Deliad II*, ‘the Delians sacrifice what they call *basyniai* to Iris, goddess of the dawn. It is wheat dough, boiled, with honey and the so-called *kokkora* (which are a dried fig and three walnuts).’ – Athenaeus 645

‘Another sweet: Take durum wheat flour and cook it in hot water so that it forms a very hard paste, then spread it on a plate. When cold cut it up in lozenges, and fry in best oil. Lift out, pour honey over, sprinkle with pepper and serve.’ – Apicius 7, 11, 6

This recipe is from the Greek island of Delos. The recipe from Athenaeus is sketchy and difficult to interpret. Were the dried fig and the walnuts ingredients in *basyniai*, or were they a separate offering to the goddess? Here we have assumed that they were separate – you can serve the figs alongside your Delian Sweets. The second recipe, quoted from Apicius, is a little clearer as to the method of making the sweets.

Pepper was once very common as a seasoning for sweets. It is surprisingly good with honey. Nutmeg has commonly replaced pepper in desserts and sweet cookery, but nutmeg was practically unknown to the classical Greeks and Romans.

Substitute honey for maple or date syrup to make these vegan.

Makes about 15

Ingredients

- 170ml water
- 60g plain (all-purpose) flour
- Olive oil for deep-frying
- 2 tbsp honey
- Poppy seeds or freshly ground black pepper

Method

Bring the water to the boil and add the sifted flour in one go, beating vigorously to incorporate. Cook out for a few minutes and turn out on to a large plate, or a marble slab if you have one. Allow to cool completely. Heat the olive oil in a deep-fryer or pan. Cut the paste into cubes – it will be firm but still a little sticky. Test the oil for temperature with a little of the mixture – if it rises and colours, the oil is ready. Drop the cubes in the oil, 2 or 3 at a time. Cook for 3 to 4 minutes until golden-brown and lift out on to kitchen paper. While they are still warm, garnish with a little warmed honey over the fritters and sprinkle them with either poppy seeds or freshly ground pepper.

These recipes and more can be found in The Classical Cookbook by Andrew Dalby and Sally Grainger, published by The British Museum Press. Find out more and buy the book at <https://www.waterstones.com/book/the-classical-cookbook/andrew-dalby/sally-grainger/9780714122755>

Please visit the site: <https://blog.britishmuseum.org/cook-a-classical-feast-nine-recipes-from-ancient-greece-and-rome/> [Go there for many nice pix]



THE MYCENAE ARCHIVE

A message from Dr Yannis Galanakis, Faculty of Classics, University of Cambridge

We are delighted to announce the launch of the digital Mycenae Archive in celebration of the centenary of British excavations at the renowned Bronze Age site. It draws upon the core collection in the Archive of the Faculty of Classics at the University of Cambridge and two collections from the Archive of the British School at Athens (BSA): the Mycenae Excavation Records and part of its BSA-Society for the Promotion of Hellenic Studies (SPHS) Image Collection.

The Mycenae Archive consists of notebooks, drawings, plans and photographs of the archaeological endeavours of the team of the BSA at Mycenae in 1920-1923, 1939 and 1950-1957 under the directorship of Alan John Bayard Wace (1879-1957), BSA Director (1914-23). All these documents have been digitised and reunited to be available as a resource for exploring Mycenae in the University of Cambridge Digital Library:

<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Ftudl.lib.cam.ac.uk%2Fcollections%2Fmycenae&data=02%7C01%7Caegeanet%40lists.ku.edu%7C3e7dbe9f4a404aa8e97608d809898ab7%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637269833636270098&sdata=jhZKvkbThMi0zuO5E9nWfhzQtLWuXaUJplj3A5f5KU0%3D&reserved=0>

The material held at the BSA is also available via the School's Digital Collections website:

<https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdigital.bsa.ac.uk%2F&data=02%7C01%7Caegeanet%40lists.ku.edu%7C3e7dbe9f4a404aa8e97608d809898ab7%7C3c176536afe643f5b96636feabbe3c1a%7C0%7C0%7C637269833636270098&sdata=lmqnvMrVqE5Qgy63kVfKC5xQSVj8GDZfpQOH0h8uVE%3D&reserved=0>

Happy Browsing!

If you have any queries about the Archives at the Faculty of Classics, University of Cambridge, please email us at archives@classics.cam.ac.uk

ROMAN BATHS

Do you know how Roman baths worked? Look at this excerpt from the MAV virtual reconstruction.

Please visit the site:

<https://www.facebook.com/mavercolano/videos/10152883260650939>

ΝΕΕΣ ΕΚΔΟΣΕΙΣ – NEW PUBLICATIONS

STRUCTURAL CHARACTERIZATION AND THERMAL DECOMPOSITION OF LIME BINDERS ALLOW ACCURATE RADIOCARBON AGE DETERMINATIONS OF AERIAL LIME PLASTER

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Abstract

Radiocarbon (^{14}C) dating of anthropogenic carbonates (CaCO_3) such as ash, lime plaster and lime mortar, has proven a difficult task due to the occurrence of a number of contaminants embedded within the CaCO_3 pyrogenic binder. These include ^{14}C -free geologic components and/or secondary phases bearing an unknown amount of ^{14}C , and thus the alteration of the original pyrogenic isotopic signature of the material results in major age offsets when carbon recovery is performed through acid hydrolysis. Here we present a characterization/quantification approach to anthropogenic carbonates that includes Fourier transform infrared spectroscopy (FTIR), X-ray diffraction, thin section petrography, thermogravimetric analysis and scanning electron microscopy coupled with high-resolution cathodoluminescence, with which we identified the pyrogenic CaCO_3 fraction in an aerial lime plaster and two hydraulic mortars. The preserved pyrogenic component was then isolated by density separation and its purity checked again using FTIR. Carbon was recovered through thermal decomposition in vacuum. The resulting ^{14}C age matches the expected age of the lime plaster, whereas hydraulic mortars are slightly offset due to the carbonation of calcium hydroxide lumps. This approach highlights the importance of a dedicated characterization strategy prior to dating and may be applied to aerial lime plasters to obtain accurate ages.

Please visit the site:

<https://www.cambridge.org/core/journals/radiocarbon/article/structural-characterization-and-thermal-decomposition-of-lime-binders-allow-accurate-radiocarbon-age-determinations-of-aerial-lime-plaster/E19007783EB0190D26484738C2EAD5C7>

A NEW ANNUAL ¹⁴C DATASET FOR CALIBRATING THE THERA ERUPTION, RADIOCARBON 33, JULY 2020

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DOI: <https://doi.org/10.1017/RDC.2020.33>

Abstract

Annually resolved tree-ring samples of the time period 1625–1510 BCE were analyzed from the German oak tree-ring chronology. Blocks of the same tree rings were previously used to generate IntCal calibration data. The new dataset shows an offset to the calibration data IntCal13 of 24 years and resembles annual data for the same time period derived from tree-ring records in other growth locations. A subset of samples of the period 1625–1585 BCE was additionally measured in three other laboratories (ETH, AAR, AA) for quality control.

Please visit the site:

<https://www.cambridge.org/core/journals/radiocarbon/article/new-annual-14c-dataset-for-calibrating-the-thera-eruption/174B2E32FC47F1AEAE9BF2B9363CD7A8>

EIAHΣEIZ - NEWS RELEASE

SAUDI ARABIA WITH A RICH HISTORY AND HOME TO ARCHEOLOGICAL TREASURES

For centuries, the remains of several ancient cities that once thrived in this area lied in ruins away from people's attention

Modern-day Saudi Arabia is home to several archeological treasures, evidence that this part of the world was once the cradle of ancient civilizations.

Several cities that once thrived in this area lay in ruins away from people's attention and, until a few decades ago, this part of the world was considered to be a vast and uninhabitable desert. However technology has made excavation easier in difficult terrains and changed that perception for good.

The discovery of several ancient sites has put Saudi Arabia on the list of countries that have a rich history and are home to archeological wonders.

An exhibition called "Roads of Arabia: Archaeological Treasures of Saudi Arabia Across the Ages" has been hosted by prominent museums around the world in order to introduce this heritage and legacy to international audiences.

One of the artifacts includes a sandstone statue known as the "Suffering Man." The masterpiece, dating back 6,000 years, was found near the town of Al-Kahafah, 200 km south of Hail.

It depicts a man with sad sunken eyes, a downturned mouth and his hands extending toward his heart.

"It was discovered during excavations by the archeology department in the Hail region," said Saudi archaeologist Dr. Saad Al-Rashed. "It dates back to the 4th millennium B.C. and exhibits a mixture of tenderness and serenity. It also reflects funerary expressions."

He said that transporting the piece was subject to approval from the highest authorities, under the guarantee of international covenants, including insurance and personal accompaniment from the country of origin.

Another famous Saudi artifact is the "Eye-Stele." It was discovered in Tayma and dates back to the 5th century B.C. It is a memorial tombstone featuring a human face and Aramaic inscriptions citing the name of Taim bin Zaid, a prominent figure of his time.

This important piece, which is well-known among archaeologists around the globe, is the only clear evidence of the existence of cultural contact between Tayma and the northwest and southern Arabian Peninsula, where similar monuments have been found.

Another item is the “Head of a Man.” The bronze statue dates back to the 1st century B.C. and was discovered in Qaryat Al-Faw, 700 km southwest of Riyadh. It shows the face of a man with a Roman hairstyle typical of that period.

The ‘Suffering Man’ was discovered during excavations by the archeology department in Hail region. It dates back to the 4th millennium BC.

Two more bronze statues have also been discovered in Qaryat Al-Faw. The first is the statue of Byzantine Emperor Hercules, who is grabbing a club with his right hand and a lion’s skin with his left. The second is of the Egyptian Pharaoh Heribocrath, who is wearing the pharaoh’s double crown.

The masterpieces from Qaryat Al-Faw include a colorful mural of a prominent figure of Kinda Kingdom that dates back to the 1st century B.C. The mural depicts a man with thick hair and a light mustache, grapevines swirling behind him, and two servants. It features a banquet and shows the influence of the Dionysian painting style that was popular in the East during the 1st and the 2nd centuries A.D.

A small statue of “Thaj Girl” was found with Thaj treasures discovered in a burial chamber in Jubail in 1998. These include a gold mask, pearls, bracelets, rings, necklaces, a gold placard inlaid with red carved rubies, and other gold pieces that date back to the Hellenistic era more than 2,000 years ago.

The 46-centimeter statue of the girl dates back to the 1st century A.D. and is made of bitumen, iron and lead. During that era the Arabian Peninsula was linked to the Mediterranean’s major trade routes.

Incense convoys in southern Arabia crossed these routes, some of which passed through Thaj city. This trade may have been the source of wealth that enabled wealthy men to put luxury items into the tomb.

Historical research and archaeological excavations indicate that settlement in the Thaj region dates back to the Stone Ages, and that the region flourished between 332 B.C. and the 1st century A.D.

Please visit the site: <https://www.arabnews.com/node/1682351/saudi-arabia> [Go there for pix]

THE FIRST PROTO-CITY

Today's selection -- from Cosmos: Possible Worlds by Ann Druryan.
National Geographic Partners, 2020, pp. 42-45

"Welcome to one of the mothers of all cities, Çatalhöyük, a community on the Anatolian plane that is now part of Turkey. ... [Nine thousand] years ago ... Çatalhöyük consisted of attached dwellings covering 33 acres. ... The city was so new back then, they hadn't invented the street yet -- or the window. So the only way you could get into your apartment was to walk over your neighbors' rooftops. A ladder was propped against the skylight opening of your apartment.

"Çatalhöyük lacked something much more significant than streets and windows. There was no palace here. The bitter price of inequality that the invention of agriculture cost human society had yet to be paid.

Here, there was no dominance of the few over the many. There was no one percent attaining lavish wealth while most everyone else merely subsisted or failed to subsist. The ethos of sharing was still alive and well. There is evidence of violence against women and children, but the weakest ate the same food that the strongest ate. Scientific analyses of the nutrition of the women, men, and children who lived here show a remarkable similarity, and everyone lived in the same kind of home. ... Dominating [every] room was a giant head of an auroch with massive pointed horns, mounted on the richly painted wall. The walls were lavishly festooned with the teeth, bones, and skins of other animals.

Çatalhöyük after the first excavations

"The apartments at Çatalhöyük have a distinctly modern look. The floor plan is highly utilitarian and modular, uniform from dwelling to dwelling, with cubicles for work, dining, entertaining, and sleep.

Bare wood beams support the ceiling. It was home for an extended family of seven to ten people.

"The ocher that our ancestors picked up in Africa about a hundred thousand years before was now the medium of choice for the interior decorators of Çatalhöyük. Murals abound of aurochs, leopards, a running man, vultures pecking the flesh from headless corpses, hunters taunting deer. And they didn't just use it to depict animals. It played an important ceremonial role in the way they honored their loved ones after death.

"A procession, bearing a corpse, would leave Çatalhöyük for a wide-open space on the Anatolian plain. A high platform awaited them.

They would leave the corpse on the platform to be consumed by birds of prey and the elements. One person would remain to stand guard and assure that the bones would not be taken. ... The procession returned when nothing was left but the skeleton. Now, it was time to decorate it with red ocher and fold it into a fetal position before burying it beneath the living room floor of their apartment. From time to time, perhaps in the context of ritual, they would open the tombs beneath them and remove the skull of a loved one to keep with them where they lived."

Please visit the site: <https://delanceyplace.com/view-archives.php?p=4139>

REMAINS OF 'LADY IN THE WELL' IN TURKEY REVEAL ASIA TO MED MIGRATION BEGAN 4,000 YEARS AGO

The bones of a woman of Central Asian descent found at the bottom of a deep well after a violent death in an ancient city in Turkey are helping scientists understand population movements during a crucial juncture in human history.

Researchers have dubbed her the "lady in the well" and her bones were among 110 skeletal remains of people who lived in a region of blossoming civilization running from Turkey through Iran between 7,500 and 3,000 years ago. The study provided the most comprehensive look to date of genetics revealing the movement and interactions of human populations in this area after the advent of agriculture and into the rise of city-states, two landmarks in human history.

The remains of the "lady in the well," found in the ruins of the ancient city of Alalakh in southern Turkey, illustrated how people and ideas circulated through the region.

The international team of researchers showed populations from Anatolia and the Caucasus started genetically mixing around 6,500 B.C. and that small migration events from Mesopotamia 4,000 years ago brought more genetic mixture to the region. DNA from the lone ancient woman revealed proof of long-distance migration during the late Bronze age about 4,000 years ago from Central Asia to the Mediterranean Coast.

Her DNA showed she hailed from somewhere in Central Asia – perhaps 2,000 miles (3,200 km) or more away. She died at about 40 to 45 years of age, the researchers said, probably between 1625 B.C. and 1511 B.C. Her body bore signs of multiple injuries.

"How and why a woman from Central Asia – or both of her parents – came to Alalakh is unclear," said Ludwig Maximilian University Munich archaeologist Philipp Stockhammer, co-director of the Max Planck-Harvard Research Center for the Archaeoscience of the Ancient Mediterranean and co-author of the study published in the journal Cell.

"Trader? Slaves? Marriage? What we can say is that genetically this woman is absolutely foreign, so that she is not the result of an intercultural marriage," Stockhammer added. "Therefore, a single woman or a small family came this long distance. The woman is killed. Why?

Rape? Hate against foreigners? Robbery? And then her body was disposed in the well."

Please visit the site: <https://www.dailysabah.com/life/history/remains-of-lady-in-the-well-in-turkey-reveal-asia-to-med-migration-began-4000-years-ago> [Go there for map]

DNA ANALYSIS OF DEAD SEA SCROLLS UNVEILS THEIR ONCE SECRET ORIGIN, BY ROSSELLA TERCATIN

“We came up with the idea of using the genetic information of the skin they were written on to investigate the possible connection between different fragments.”

At least some of the Dead Sea Scrolls were most likely not manufactured locally but made their way at some later point to the unique community that amassed the library in the Qumran Caves, a project extracting and analyzing the DNA from the parchments has revealed.

For decades, scholars have been debating the origin of the extraordinary collection of hundreds of manuscripts collated in the heart of the Judean Desert. The seven-year-long endeavor carried out on about 35 fragments has opened new horizons into a possible solution to the mystery, as well as many other enigmas – including how to piece together fragments which might have belonged to the same scroll.

The idea of the project emerged by chance when Prof. Oded Rechavi, a geneticist from Tel Aviv University’s George S. Wise Faculty of Life Sciences, and Prof. Noam Mizrahi of TAU’s Department of Biblical Studies sat together at dinner during a retreat for new members of the faculty, and started discussing how two distant fields could work together.

“We came up with the idea of using the genetic information of the skin they were written on to investigate the possible connection between different fragments,” Rechavi told The Jerusalem Post.

In years that have seen the field of ancient DNA booming, that first conversation became a major international cooperation that came to involve the Israel Antiquities Authority, Uppsala University in Sweden and Weill Cornell Medicine in New York – and whose findings were published as the cover story of the journal *Cell* on Tuesday.

The first challenge that the researchers had to face was the actual extraction of the DNA from the scrolls.

“It was not entirely clear to us that doing it was at all possible: the process of turning skin into parchment, as well as 2,000-year-long aging, damage the DNA significantly,” Rechavi said. “Moreover, we could not just take a fragment and chop it apart.”

As explained to the Post by Pnina Shor, founder of the IAA Dead Sea Scrolls Unit, which is in charge of preserving the artifacts, no attempt to extract the DNA from the parchment had been done before precisely to avoid its potential destructiveness.

However, this time the team felt that the process could be carried out, by finding the right balance between protecting the scrolls for posterity and allowing scholars to open a new and rich field of study.

The activity of sampling the manuscripts to provide the geneticists with the material to analyze was tasked to the team's conservators, the only ones who are allowed to touch them.

“We had to be very careful, but between the first fragment we sampled and the last one, we realized that we could also just scrape the back of the scroll and it would give us enough material to be analyzed, so either we did that or we cut a minute piece of the parchment,” Shor explained.

ANOTHER CHALLENGE was represented by the fact that over the course of the centuries, the scrolls had been contaminated by different animals, bacteria and humans who handled them in antiquity as well as in recent years.

“We had to filter out all those residuals using computational tools and algorithms,” Rechavi explained.

Once the major challenges were overcome though, the findings of analysis of the very limited amount of scrolls – chosen because of their significance vis-à-vis issues that scholars had been grappling with for decades – have proven extraordinary.

Almost all the fragments analyzed turned out to be made out of sheep skins, a species compatible with the desert environment, yet the parchment of two fragments was identified as cow hide, which represented one of the most crucial results of the project.

“Cattle breeding in principle is not possible in the desert, as cows require a lot of grass and water – therefore most likely those parchments were not produced locally but brought from outside,” Bible scholar Mizrahi said. “This is very important because there is a long-standing debate among scholars about the provenance of the Dead Sea Scrolls and which ones might be reflective of the very peculiar world of the extremist Jewish sect that probably resided in Qumran, and which ones were brought from the outside and potentially reflect the broader Jewish society of the period.”

Moreover, one of the two fragments written on cow hide, featuring some text from the biblical book of Jeremiah, was previously believed by many experts to be part of the same scroll of another two fragments from the same book. However, the research proved that this was not possible, as the parchment was different.

The researchers did not stop at the animal species: they were able to ascertain more than whether two fragments were made of parchment manufactured from the same animal or from genetically related animals.

“This allowed us to cluster together some scroll pieces and to separate others,” Rechavi said.

“We can now compare this classification with others proposed in the past on the basis of philological evidence,” Mizrahi added.

Among the fragments analyzed was a scroll uncovered in Masada featuring the Song of the Sabbath Sacrifice, considered very connected to the Qumran community. The artifact

confirmed one of the pillars of the theory that refugees from Qumran made their way to Masada after its destruction by the Romans in 68 CE. However, that parchment was created using the skin of a sheep that seems genetically unrelated to the ones used for the Qumran copies examined, suggesting that the scroll was actually not originally from there.

“Another aspect is that if the text in Masada was not from Qumran it was probably brought there from elsewhere, hence the song was known beyond Qumran in Second Temple Jewish society,” Mizrahi said. “This might represent the missing link between this text and later mystical traditions bearing some similarities. We might have here one of the roots of Western mysticism.”

IN OTHER areas, the DNA analysis supported theories proposed in the past.

It confirmed that most fragments classified under what is known as “Qumran Scribal Practice,” a philological classification to distinguish between manuscripts considered specific to the Qumran community from general Jewish manuscripts, were written on the skin of genetically related sheep.

In the future, the team aims to analyze more fragments, but also to understand more about the genetics of the species used to produce the parchment in ancient Israel, for example, by extracting from contemporary animal bones.

“As time passed we understood the challenges better, including the computational ones,” Rechavi explained. “We hope we will proceed faster now.”

With about 25,000 fragments still waiting, many enigmas are still to be solved, including the largest of all: who wrote and assembled those unique manuscripts, which 2,000 years later have offered the world the rarest glimpse into the ancient Jewish world before the exile?

Please visit the site: <https://www.jpost.com/israel-news/dna-analysis-of-dead-sea-scrolls-unveils-their-once-secret-origin-630043>

PICTURES OF RESTRAINT: HUNTING CARNIVORES ON MOSAICS FROM THE ROMAN AND BYZANTINE PERIODS, BY AMIR GORZALCZANY AND BARUCH ROSEN

Relationships between humans and captured animals have always depended on restraining devices. These were essential for imposing human will.

Representations of humans controlling animals are also among the oldest motifs in ancient Near Eastern art. The Roman and Byzantine periods were no exception. Tethering appliances used in the Southern Levant during those periods are known from written sources and graphic representations on varying media: sculpture, wall paintings and carved sarcophagi. A particularly valuable means for understanding this aspect of everyday life are mosaic floors.

Tethering devices may vary according to the animal and the function expected and forced on it. Cages, ropes, tying knots and tethering gadgets used to immobilize and transport captured animals have been discussed. Devices used for both military and civilian riding or while utilizing traction animals differed from those used just for control.

Tethering devices used to control a species would also vary depending on the expected function. A tracking hound would be tethered differently than a guard dog or one pulling a sled. Generally, when tethering aimed at controlling animal's movements, such as a hunting or guarding dog, the basic controlling element was a neck collar. The leash, when used, was attached to the collar.

In most mosaic depictions carnivores were depicted fighting, hunting and killing. They were divided into two categories: carnivores tamed but not domesticated and those fully domesticated. The first category is represented by the mongoose and the cheetah and the second consists of dogs. Mosaics showing additional carnivores are known from elsewhere. But these categories, and the location of the mosaics, raise questions of symbolism. What scenes depicted reality and what were idealized, and what message did control of particular animals represent?

The Mongoose

The mongoose is a wild animal but when hand-reared from youth, make excellent pets. Since antiquity mongooses have been used as snake killers. In Iraq the presence of wild mongooses, acting as pest controllers in inhabited areas, was accepted. In Egypt they were revered as eaters of crocodile eggs and snake killers.

Tethered mongooses are depicted on four different mosaics from Israel.

A mosaic from Jerusalem depicts a mongoose tethered by a harness. A second, on a mosaic in Be'er Shema', wears a collar. The third, also wearing a collar is depicted, poorly preserved, on a mosaic at Sede Nahum, while the fourth appears on the mosaic in

Tabgha. In two other mosaics from Syria and Lebanon, the animals do not wear a restraining device, representing perhaps wild or fully tamed specimens.

Mongoose depicted in the mosaics were probably tamed, like those exhibited by the street snake-charmers in India. At Sede Nahum the snake is partially concealed due to the mosaic's deterioration, but since the mongoose is collared and in a fighting stance, possibly confronting a snake.

The Cheetah

A single harness-tethered cheetah appears in the Lod mosaic. Tamed hunting cheetahs were also used in the Middle East and India since antiquity. Other large felines handled by men in the Roman and Byzantine periods are known from Dionysian processions in the Southern Levant, such as that depicted in the Erez mosaic. It is often difficult to securely identify paraded large felines on mosaics and distinguish idealized from real events.

The cheetah became extinct in the Levant by the first half of the 20th century. But cheetahs were kept in ancient Egypt as hunting aids since at least the 15th century BCE and in Arabia since pre-Islamic times.

In medieval times hunting with tamed cheetahs was customary. Carved representations of cheetahs appear on stone sarcophagi. Culturally speaking, like all big felines, they are so-called 'prestige animals,' their use implying rank and status.

The Dog

Dogs were the first domesticated animals and hunters-gatherers developed a symbiotic co-existence with dogs in Australia and Africa.

Hunter-gatherers of the Arctic bred dogs for hauling at least 2,000 years ago, while in Spain dogs were used as backpack carriers during the Early Bronze Age. The use of dogs in hauling and carriage necessitated the use of more complex devices than simple collars. Such tethering devices would have preceded the appearance of the harness seen on Roman mosaics.

Numerous depictions of dogs are known. A hunting dog tethered by a collar and a leash appears in Egypt in Ptahhotep's (5th Dynasty) tomb from ca. 2500 BCE. Assyrian records show collared hunting dogs. Rock carvings in Yemen, dated around the 1st century BCE, show hounds in hunts. Dogs tethered by collars and leashes were depicted on Greek works of art during the second half of the 1st millennium BCE.

Examples from mosaics in Israel include both harnesses and collars.

Tethering Devices: Harnesses and Collars The collar has been the most ubiquitous tethering device. Some dog collars seen on mosaics have an attaching ring atop the dog back for a restraining leash. The harness was less common on mosaics depicting controlled dogs on both sides of the Jordan and in North Africa.

The paucity of harnesses suggests that most owners of carnivores preferred collars over harnesses. Of the animals discussed here, the dog was the first domesticate. Wild carnivores like mongoose and the cheetah may have been tamed in pre-modern times using methods similar to modern ones. Both were tamed by professionals who captured young animals or bought them from their catchers.

The owner-users of the tamed species differed greatly. In medieval times and later in the Levant and India, the class of people who hunted with cheetahs contrasted significantly from those using tamed mongooses. The same scenario seems to have prevailed in antiquity. The cheetah was a prestige animal associated with ceremonial hunting by royalty and aristocracy.

In contrast, tamed mongooses were used to control pests, especially snakes, in rural environments. Of the six mongooses' depictions discussed here, three were tethered by a collar and one other by a harness. In two other cases, the mongooses wore no restraining device and may show either fighting in the wild or symbolic depictions.

The distinction between the frequent use of collar and the restricted use of harnesses may have been related to the attitude of the owner toward the animal or/and its intended use. The bloody scenes and differently harnessed animals in the Lod mosaics could indicate the intended role of the animal. It may simply be that the person who commissioned the mosaic was a passionate hunter who owned a cheetah and a favorite pack of hounds. In a North African mosaic names of favorite hunting hounds were inscribed above their depictions. The mongoose tethered by a harness in a Jerusalem church in a symbolic-religious Orpheic scene may show Egyptian influence, remembering its role there as a killer of snakes. Replacing the common collar by a harness would have emphasized its special status.

Conversely, the mongooses wearing a collar appearing in rural church mosaics depicted everyday life where both dogs and the mongoose were tethered by collars.

Depictions of a restrained animal carried messages. Putting the tethering device on a given animal, either tamed and/or domesticated, delivered two major ideas. First, the act of tethering symbolized and drew attention to the social role of the tethered animal in the given scene. The abstract idea of 'control' was the message conveyed by collars and harnesses. Secondly, in mosaics placed in a residence in contrast to a church, the details of the tethering drew attention to the attitude of an animal toward its physical owner, as did naming of hounds on a North African mosaic.

Future archaeological discoveries and study of ancient written sources will increase the understanding of man-animals' relationships in antiquity and the use and meaning of the devices involved in conducting them.

Amir Gorzalczany is a Senior Research Archaeologist with the Israel Antiquities Authority. Baruch Rosen is an independent researcher.

Please visit the site: <http://www.asor.org/anetoday/2020/06/pictures-of-restraint> [Go there for pix and nicer format]

ARCHAEOLOGISTS REVEAL ANCIENT ISRAEL ‘PREHISTORIC SNACK’, BY ROSSELLA TERCATIN

The findings of their research were published in the academic journal Scientific Reports on Wednesday.

A new delicatessen needs to be added to the specialties that prehistoric people in Israel consumed: snakes. A group of researchers from the Zinman Institute of Archaeology at the University of Haifa has proved for the first time that ancient populations living in the Mount Carmel area around 15,000 years ago ate reptiles such as snakes and lizards together with birds and small game.

The findings of their research were published in the academic journal Scientific Reports on Wednesday.

"Our project was inspired not by theories but by the work in the field," Dr. Reuben Yeshurum, co-author of the paper together with Ma'ayan Lev and Mina Weinstein-Evron, told The Jerusalem Post. "From the beginning, our excavations in the site of el-Wad Terrace revealed lots of bones of snakes and lizards, usually the vertebrae. We found them almost every day. We became really curious to understand if people ate them or if they had gotten there by some other process."

Yeshurum explained that the site, as in the case of many prehistoric sites, presents a mixture of remains connected to the human settlement, such as stone tools and rests of eaten animals, mixed with items which accumulated naturally. The reptiles' bones could have been part of both groups.

The project became the subject of Lev's MA thesis and then PhD dissertation. Since almost no scientific literature existed to explore the question, the group had to develop new methodologies.

The scientists analyzed the bones and conducted several taphonomical studies to identify the processes that affected their decay, comparing the results with other experiments carried out on modern bones to see how processes such as roasting, digesting, trampling or just exposing them to different weather conditions might have impacted them.

"We roasted modern snakes' vertebrae in the oven, we tried to chop them and so forth," Yeshurum pointed out.

The group was able to conclude that the reptiles were in fact consumed by the community.

"On some vertebrae we found in the site we were even able to identify signs of the use of flint knives, indicating that probably the snakes were butchered," the archaeologist said.

El-Wad Terrace is a prominent Natufian site. Natufian communities lived in the area in the late Epipaleolithic, around 15,000-11,700 years ago, at the transition between the Paleolithic and the Neolithic era, which was reflected in their lifestyle.

“They were still hunter-gatherers and did not know how to produce food, but they still lived in permanent small communities. For this reason, they really needed to come up with numerous methods to procure food. One of the things they did was capturing and eating almost everything. Now we can add a new item to their menu,” the scholar said.

The researchers were also able to identify a distinction between venomous and non-venomous species of snakes whose bones were uncovered in the site: while they found conclusive evidence that non-poisonous species were eaten, they could not detect any of such signs in the remains of poisonous species, such as vipers, which likely died there of natural causes.

“Our next step will be to apply the methods we developed to more contexts. Now that we have convincing evidence from one important site, we can look into exploring the patterns to understand how long ago humans in Israel started to eat snakes and lizards and whether they continued to do so later on,” Yeshurum told the Post.

“At the moment, we are already looking into a different Natufian site on Mount Carmel, not a settlement, but a burial cave. It is going to be interesting to see whether we reach similar findings on the bones collected there,” he concluded.

Please visit the site: <https://www.jpost.com/israel-news/archaeologists-reveal-ancient-israel-prehistoric-snack-630952>

ENTIRE ROMAN CITY REVEALED **WITHOUT ANY DIGGING BY UNIVERSITY** **OF CAMBRIDGE**

For the first time, archeologists have succeeded in mapping a complete Roman city, Falerii Novi in Italy, using advanced ground penetrating radar (GPR), allowing them to reveal astonishing details while it remains deep underground. The technology could revolutionize our understanding of ancient settlements.

The team, from the University of Cambridge and Ghent University, has discovered a bath complex, market, temple, a public monument unlike anything seen before, and even the city's sprawling network of water pipes. By looking at different depths, the archeologists can now study how the town evolved over hundreds of years.

The research, published today in *Antiquity*, harnessed recent advances in GPR technology which make it possible to explore larger areas in higher resolution than ever before. This is likely to have major implications for the study of ancient cities because many cannot be excavated either because they are too large, or because they are trapped under modern structures.

GPR works like regular radar, bouncing radio waves off objects and using the 'echo' to build up a picture at different depths.* By towing their GPR instruments behind a quad bike, the archeologists surveyed all 30.5 hectares within the city's walls—Falerii Novi was just under half the size of Pompeii—taking a reading every 12.5cm.

Located 50 km north of Rome and first occupied in 241 BC, Falerii Novi survived into the medieval period (until around AD 700). The team's GPR data can now start to reveal some of the physical changes experienced by the city in this time. They have already found evidence of stone robbing.

The study also challenges certain assumptions about Roman urban design, showing that Falerii Novi's layout was less standardized than many other well-studied towns, like Pompeii. The temple, market building and bath complex discovered by the team are also more architecturally elaborate than would usually be expected in a small city.

In a southern district, just within the city's walls, GPR revealed a large rectangular building connected to a series of water pipes which lead to the aqueduct. Remarkably, these pipes can be traced across much of Falerii Novi, running beneath its insulae (city blocks), and not just along its streets, as might normally be expected. The team believes that this structure was an open-air natatio or pool, forming part of a substantial public bathing complex.

Even more unexpectedly, near the city's north gate, the team identified a pair of large structures facing each other within a porticus duplex (a covered passageway with central row of columns).

They know of no direct parallel but believe these were part of an impressive public monument, and contributed to an intriguing sacred landscape on the city's edge.

Corresponding author, Professor Martin Millett from the University of Cambridge's Faculty of Classics, said:

"The astonishing level of detail which we have achieved at Falerii Novi, and the surprising features that GPR has revealed, suggest that this type of survey could transform the way archeologists investigate urban sites, as total entities."

Millett and his colleagues have already used GPR to survey Interamna Lirenas in Italy, and on a lesser scale, Alborough in North Yorkshire, but they now hope to see it deployed on far bigger sites.

"It is exciting and now realistic to imagine GPR being used to survey a major city such as Miletus in Turkey, Nicopolis in Greece or Cyrene in Libya", Millett said. "We still have so much to learn about Roman urban life and this technology should open up unprecedented opportunities for decades to come."

The sheer wealth of data produced by such high-resolution mapping does, however, pose significant challenges. Traditional methods of manual data analysis are too time consuming, requiring around 20 hours to fully document a single hectare. It will be some time before the researchers finish examining Falerii Novi but to speed the process up they are developing new automated techniques.

Falerii Novi is well documented in the historical record, is not covered by modern buildings and has been the subject of decades of analysis using other non-invasive techniques, such as magnetometry, but GPR has now revealed a far more complete picture.

More information: L. Verdonck, A. Launaro, F. Vermeulen & M. Millett, 'Ground-penetrating radar survey at Falerii Novi: a new approach to the study of Roman cities', 9 June 2020. DOI: 10.15184/aqy.2020.82

Please visit the site: <https://phys.org/news/2020-06-entire-roman-city-revealed.html>
[Go there for pix]

MACHINE LEARNING HELPS ARCHAEOLOGISTS IDENTIFY THE SOURCE OF ANCIENT POOP, BY AMANDA BUCKIEWICZ

Ancient feces can be a gold mine of information. But only if scientists know what left it behind.

For archaeologists, fossilized feces is a valuable tool that can provide useful information about how ancient creatures lived, what they ate, and how healthy they were. But because humans have lived alongside dogs for thousands of years, it can often be difficult to tell who left the feces behind.

"When you find paleo-feces archaeologically it's undergone a lot of changes, it's often been compressed, it's lost much of its colour," anthropologist Christina Warinner told Quirks & Quarks host Bob McDonald. "All those other features that are usually make it obvious if it's human or dog are lost."

So Warinner and her colleague Maxime Borry, of the Max Planck Institute for the Science of Human History, have developed a tool that uses machine learning to scan the feces for gut bacteria as well as remnants of host DNA, to provide a species match within minutes.

Dog feces recovered from a 7000-year-old Chinese farming village.
(Jada Ko, courtesy of the Anhui Provincial Institute of Cultural Relics and Archaeology.)

To test the system, they applied it to both new and old samples of paleo-feces, some dating back 7,200 years, from archeological sites in Mexico, China, and across Europe. The team discovered that many samples that had previously been attributed to humans, actually came from dogs.

"We have discovered that actually the archeological record is full of dog poop and this is giving us an entirely new window into the relationship between humans and dogs," said Warinner.

"I know that for the average person it might seem a little bit strange, but latrines and trash pits are some of the most interesting things that an archeologist can excavate."

The research was published in the journal PeerJ.

Please visit the site: <https://www.cbc.ca/radio/quirks/machine-learning-helps-archaeologists-identify-the-source-of-ancient-poop-1.5598604>

BENEATH THE EUPHRATES SEDIMENTS: MAGNETIC TRACES OF THE MESOPOTAMIAN MEGACITY URUK- WARKA, BY JÖRG W.E. FASSBINDER

By 3000 BCE Uruk-Warka was one of the largest megacities of Mesopotamia. It was also the setting for the oldest saga of humankind, the famous “Epic of Gilgamesh.” More than 100 years of archaeological research and excavations by the German Archaeological Institute (DAI) have revealed the ruins of this metropolis. New techniques now peer further beneath the surface without excavation.

The city was center for a multitude of technical innovations, including irrigation canals, plaster mortar, astronomy, writing, literacy and numeracy. About 40,000 residents inhabited Uruk already by 3000 BCE, in an area of some five square kilometres. The diameter of the city is 4-5 kilometers, the enclosing wall has a length of some 11 kilometers. Meanwhile surface surveys, excavations and texts have confirmed the presence of canals, houses, temples and gardens even outside the city wall.

Archaeological research into such an enormous site cannot be restricted to excavation and archaeological survey. Excavations are time consuming and must be aimed at the optimal targets. All kinds of remote sensing techniques must therefore be used to understand the city in its entirety. Aerial photography may be done in suitable weather conditions during the year, along with high-resolution satellite image analysis and Airborne Laser Scanning. But these methods are limited not only by temporary weather conditions; they provide information only about the uppermost centimetres of the subsurface. Deeper features and those covered by sediments remain unseen.

Geophysics provides us with a wide range of prospecting methods that can peer beyond the near surface underground. Magnetic, electric, and radar prospection are highly developed geophysical tools to survey the first 1-3 meters beneath the ground with sufficiently high spatial resolution. Unfortunately radar prospecting at Uruk will fail, since the Euphrates sediments are extremely salty and contain such a high amount of clay minerals that the energy of the waves are attenuated in the first upper 20 cm of the ground. The first tests with resistivity prospecting (ERT = Earth Resistance Tomography) in the spring season of 2019 revealed promising results with respect to measuring the exact depth of features, although resistivity values are extremely low due to the high salt concentration of the sediments. But these prospecting methods are time consuming and thus of limited use for such a large area. Magnetometer prospecting remains the most suitable method to trace archaeological structures up to 3 meter beneath the ground.

Magnetometry for archaeological prospecting using total field caesium magnetometers was developed and refined at the Bavarian State Department of Monuments and Sites in a close cooperation with the Geophysics Institute of the Ludwig-Maximilians-University Munich since the late 1970’s. The caesium magnetometer probes, compared to commercial models, provide up to 100 times higher resolution. These types of instruments, adapted to the specific requirements of archaeological prospecting, must be carried manually approximately 30 cm above the ground. Ideal ground conditions are

soft, muddy or dusty soils, conditions that make it impossible to use a wheeled system, which will either stick in the soft mud and sand and damage the archaeological features.

Magnetometer prospecting in Uruk was initiated by the archaeologist Margarete van Ess (director of the DAI in Baghdad) and carried out by the Munich prospecting team in 2001-2002, resumed after the Iraq war in 2016, and continued in 2018 and 2019. The geophysical survey was started in the southwestern part of the city and focused on an area north of the Sinkashid Palace. A large canal passes this area to the east, and it includes the canal and its branches, a harbour and settlement area east of Sinkashid palace and a settlement area southwest of the palace. A second, large area was measured across the southern city wall, bringing to light construction details, a water gate, as well as nearby gardens and fields. In the south, outside the city, a large burial ground and a huge building complex of the city wall were detected.

The magnetogram image provides insight into settlement areas, gardens and fields close to the city wall, as well the network of canals that obviously served as the main arteries of Uruk. This network of waterways and canals cross the city from north to south and makes the city quarters accessible, but also provide water for the irrigation of gardens inside the enclosed city. The main canal was traced in the eastern part of the magnetogram for a length of 400 m. It is 10 m wide and, at several points, slightly smaller canals branch off to the west. Left and right of the canal are settlement areas, divided by the smaller canals that led to fields and gardens west of the settlement areas. Canals of three or four different widths, the smallest belonging to the field irrigation systems, can be distinguished.

The central part of the magnetically scanned area is characterized by two different main features. In the south, a large structure, running East – West, seems to accompany the canals into the city centre. A similar shorter structure some metres to the west obviously blocks part of the main canal. None of these structures are visible neither from the air nor from the ground, which is very flat in this part of the city. However, they seem to control or guide the water flow and the canals. Here a selective excavation could determine the date and the nature of these structures.

In the south, the city wall and a small canal crossing the city wall can be seen. Here, the course of the city wall and, at regular intervals, its bastions known from previous excavations and documentation elsewhere in the city, are clearly visible. The high intensity of the signal over parts of the wall on its inner and outer faces seems to indicate the presence of fired bricks, a detail that was not known before. Recent excavations brought to light that these bricks were composed of ancient, burnt pottery. It is also apparent that the fortification complex was constructed using more separate walls than were previously known, and that the canal circling the city ran just outside it. The entire wall complex was nearly 40 m wide. The wall itself, with its inner and outer shells of bricks, is ca. 9 m thick, an observation that corresponds to the excavation findings.

Further details about Uruk's structure are provided by the magnetogram of the southwest gate, which is nearly 15 m wide and can be interpreted as a floodgate, where the inner city's large west and central canals flowed out through the wall. On the outside, the gate was flanked by towers and was probably strengthened with fired bricks.

Downstream of the floodgate, a small side canal branches off to the southeast, expanding roughly midway in front of a large building of fired bricks into a small harbour-like structure. A precise inspection of the building reveals a slight shift in the orientation of the walls, indicating two building phases, while a closer view on the harbour seems to reveal vague traces of buried ships.

Supplementary “Earth Resistance Tomography” (ERT) profiles allow to verify and to validate the depth of archaeological features such as the extension and the depth of the city wall or the shape and depth of the ancient canals. Detailed analysis of the magnetograms, supplementary measurements with resistivity prospecting or seismic methods combined with satellite remote sensing, UAV surveys, topographical information and the integration of archaeological data from selected and targeted excavations, will allow for closer insights into the development, the structure and the functions of the city, even without large and costly excavation. The magnetometer survey hopefully will be continued and will offer a comprehensive picture of the structure of Uruk through time.

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Jörg W.E. Fassbinder is a faculty member and lecturer at the Geophysics Department of Earth and Environmental Sciences, Ludwig-Maximilians-University, Munich, Germany.

Please visit the site: <http://www.asor.org/anetoday/2020/06/euphrates-sediments> [Go there for many pix, maps]

FIRST EVIDENCE OF LIFE-SIZED DIVINE STATUES DISCOVERED IN BIBLICAL LACHISH

Archaeologists find sceptre made of bronze with silver leaf in the Holy of Holies in a Canaanite temple from 3,200 years ago, that likely was held by a large statue of a god Nir Hasson

A sceptre about 3,200 years old made of copper and coated in silver leaf found in the biblical city of Lachish could be the first evidence of life-sized “divine statues” in the Levant, as described in ancient sources but never found to date, researchers from the Hebrew University report in the journal of Antiquity.

The discovery in the Canaanite city is one of a kind, says Prof. Yossi Garfinkel of the Hebrew University of Jerusalem.

The sceptre is all that remains of what had been a large statue of a god gracing the city’s temple in antiquity, the professor thinks. It was discovered at a spot believed to be the Holy of Holies in the Canaanite temple, he reports in Antiquity. That position is exactly as described in Mesopotamian texts, which say the life-sized statues of gods stood in the most secluded part of the temple.

In fact, though life sized divine statues were described time and again in ancient records, and there is even a Neo-Assyrian relief from Nineveh depicting soldiers looting such a statue from a temple, no intact ones have ever been found in the Levant. Nor has one now, but this remarkable sceptre could have been held by one.

It bears adding that quite large metal divine sculptures, 36 and 56 centimeters tall, have been found in Cyprus but even ones that size haven’t been found in the Levant. The site of the so-called earliest temple in the world, Gobekli Tepe, also features large stone sculptures from as much as 11,000 years ago. Statues a meter tall made of mud and plaster were found in Jericho and ‘Ain Ghazal from the 9th millennium B.C.E.

The newly reported sceptre, as said from the much later Canaanite period around 3,200 years ago, had actually been discovered in Lachish some years ago by Hebrew University team headed by Garfinkel at Lachish, a city in the Judean plain. It is just over 11 centimeters long by four centimeters wide, and coated with thin silver leaf on its front, and basically looks like a spatula. It is just over 11 centimeters long by four centimeters wide (4.3 by 1.5 inches), is coated with thin silver leaf on its front, and basically looks like a spatula. This artifact was engraved with dots and lines that do not seem to be figurative, but could theoretically represent an astral or mythical symbol, Garfinkel suggests.

Near it the archaeologists also found two small statuettes of divine entities, apparently representing Baal.

From its discovery the researchers thought the find was a ritual object, but its significance only came to light after it had been cleaned, and they realized it was made of bronze with silver leaf.

They also found bronze weapons, gold earrings, gold wire, and a lot of beads in the temple area.

It bears adding that archaeologists have found smaller metal statues of gods, including one (excavated during the British Mandate period) at Tel Megiddo. The wee divine statue from Megiddo, also from the Canaanite period, is a miniature 27 centimeters in length and is gilded in bronze. That statue is holding something in hand that quite resembles the sceptre found in Lachish. The two are identical in their external shape, but have different decorations, Garfinkel learned.

The conclusion is that the sceptre from Lachish is a vestige of a large statue of a Canaanite god, perhaps a life-sized one, who was holding it. The importance attributed to the sceptres, the big one at Lachish and the tiny one held by the Megiddo statuette, is evinced by their coating, with gold in Megiddo and silver in Lachish.

A similar object was excavated by Israeli archaeologist Yigael Yadin in Tel Hazor in the 1960s. The object from Hazor is adorned with snakes rather than abstract decorations like those from Megiddo and Lachish.

Garfinkel proposes two alternative explanations for the decorations on the scepter. “The significance of this complex pattern is not clear to me as yet,” he wrote in the article. “Sometimes I believe that the engraving in Lachish resembles a human figure with a large head, two diagonal arms and a schematic lower torso with two legs.”

It might not, though, he adds: “it’s possible that this form has no figurative meaning at all, but represents some astronomical or magical symbol. The decoration in Megiddo isn’t clear either, and supports the conclusion that this decoration is not figurative.”

He believes that this object is what the Bible calls the “divine scepter,” as for example in the stories of the miracles performed by Moses by means of the scepter in the book of Exodus. In the Lachish temple they also found beads, weapons and various gold items. Garfinkel estimates that some of them may have adorned the statue of the god that resided there.

One wonders why no life sized statues of gods have been found if they used to adorn temples around the region. “The statues could have been made of wood and other perishable materials,” Garfinkel suggests. Or maybe — as indicated by the beautiful sceptre — they were adorned with precious metals and stones and attracted thieves: robbing temples and tombs is not a figment of modern society. Or maybe they were looted by marauding soldiers, which isn’t a figment exclusive to modern society either.

Please visit the site: <https://www.haaretz.com/archaeology/premium-first-evidence-of-life-sized-divine-statues-found-in-lachish-1.8930283> [Go there for pix]

[See also <https://www.timesofisrael.com/ancient-scepter-found-in-south-may-have-been-part-of-life-sized-divine-statue/>]

DEATH FROM ABOVE? FIREBALL MAY HAVE DESTROYED ANCIENT SYRIAN VILLAGE, BY NOLA TAYLOR REDD

An ancient airburst apparently destroyed one of the first farming villages.

Debris from a comet may have leveled an ancient village in Syria during a spate of several such explosions occurring around the world, according to new research.

The village of Abu Hureyra was a mound settlement in northern Syria around 13,000 years ago. The site was quickly excavated in 1972 and 1973, before the Euphrates River was dammed, flooding the site beneath Lake Assad. But the hurried excavations exposed charcoal-rich surfaces containing glass spheres formed from melting soil, melted iron- and sulfur-rich samples, and nanodiamonds. Such materials are all indicators of extremely high temperatures like those produced by a chunk of rock exploding in the air.

A team led by Andrew Moore, an archeologist at the Rochester Institute of Technology in New York who led the emergency excavations of the site in the '70s, recently reexamined some of the excavated material in greater detail. The scientists then developed experimental methods to replicate the materials they discovered at the village.

"These provided new insights into how the meltglass was formed and how plant and other materials became incorporated in it," Moore told Space.com by email.

Melting the minerals found in the soil requires temperatures over 3,630 degrees Fahrenheit (2,000 degrees Celsius), "hot enough to cause the quartz grains to boil," Moore said. That suggests something cataclysmic.

"It is impossible to explain these melted minerals on meltglass by any natural process other than a cosmic impact event," Moore said.

A deadly explosion

The first settlers of Abu Hureyra were hunter-gatherers who lived off the land. A terrible drought drove the people to begin cultivating grains that they had previously collected from the wild, turning them into the first known farmers, previous research has revealed.

Then, about 13,000 years ago, something very bad seems to have occurred, leaving a layer of carbon suggesting dramatic fires. But for much of the last decade, scientists inspecting the remnants of the village have debated what happened, unable to decide whether the carbon formed during an airburst or during more mundane fires among the thatched huts.

So Moore decided to reexamine the glass in more detail. His analysis of the glass composition matched a 2012 finding claiming an airburst had destroyed Abu Hureyra, suggesting that the villagers' bucolic lifestyle ended suddenly when one or more fragments from a passing comet exploded in the air nearby.

"People who were in or near the village of Abu Hureyra at the time the airburst exploded would have seen an immense flash in the sky, equivalent to a nuclear explosion," Moore said. "A few seconds later, they would have been incinerated by the blast emanating from the airburst. The heat wave destroyed the village and everything in it, leaving a layer of burned material across the surface."

Observers several tens of kilometers from the site would have seen the flash, heard the explosion, and felt the heatwave, but likely survived the detonation.

Moore and his colleagues heated fragments of the glass in a laboratory furnace until they had fully melted, which occurred at 2,400 F (1,300 C), establishing a lower limit for the temperature the spheroids had originally been exposed to. But it took higher temperatures for the quartz and other particles on the exterior to melt.

The researchers also compared the Abu Hureyra material with glass melted at other prehistoric impact sites on Earth and found many similarities. The wealth of meltglass dating to roughly the same timeframe suggests to researchers that thousands of pieces of debris shed from a comet slammed into Earth's atmosphere 12,800 years ago, impacting more than 40 sites across North America and Europe.

The new findings by Moore's team match a 2007 hypothesis that Earth experienced several multi-continental airbursts. Since an individual comet or asteroid large enough to cause such widespread destruction is unlikely, the researchers suspect the disparate impacts were possibly caused by cometary debris.

"The largest cometary debris clusters are proposed to be capable of causing thousands of airbursts within a span of minutes across one entire hemisphere of Earth," the authors wrote. "An encounter with such a million-km-wide debris cluster would be thousands of times more probable than a collision with a 100-km-wide comet or a 10-km-wide asteroid."

The research was published March 6 in the journal Scientific Reports.

Please visit the site: <https://www.space.com/comet-debris-destroyed-ancient-syrian-town.html> [Full paper at <https://www.nature.com/articles/s41598-020-60867-w>]

A “LANDSCAPE OF MEMORY” - KNOSSOS **IN THE EARLY IRON AGE,** **BY CHRIS ADAMSON**

During the Early Iron Age, people dwelled among the ruins of the palace at Knossos in what we may refer to as a “landscape of memory”, one imbued with the collective memories of a bygone era.

“What made you want to come here?” A few years ago I took it upon myself to start a long-running, intermittent, and entirely unscientific survey by asking this question of people I met on visits to archaeological sites in Greece.

The different answers were as numerous as the people I asked. Some were short: “I didn’t,” was the response of one sulky teenager dragged along by her grandparents. Some were detailed: archaeological colleagues would outline the research outcomes they hoped to achieve by visiting a particular site, some at more length than others.

From the neophyte tourist to all but the most hard-nosed archaeologist, almost everyone uttered some version of, “There’s just something special about being here amongst the ruins”.

So what is it about ruins? Much has been written about their significance – they have attracted the attention of anthropologists and sociologists as well as archaeologists and art historians – but a common idea is that people find ruins special because they somehow bend the rules of time and space. To be amongst them is to place yourself in the past, but by their very nature ruins belong to the present. They are what is left when that past has gone.

When we look at this physical remnant, the real earth and stone that make up a ruin, we really see so much more. Like a “then and now” guidebook in which every picture of a ruin is paired with an acetate overlay depicting an artist’s reconstruction, our imaginations conjure the sights, the sounds, and the people that would have been here before the ruins were ruins.

When presented with remnants of the past it comes naturally to us to imagine what was once there. Something that is less intuitive is that people in the past did this too – that the past existed in the past.

In this article we will explore this idea using the example of Knossos, the Minoan “Palace” on the island of Crete.

The Palace of Minos

Visiting Knossos today we see the extensive remains of a Bronze Age building complex excavated by the British archaeologist Sir Arthur Evans, primarily between 1900 and 1905. This complex Evans termed “The Palace of Minos”, and the civilisation to which it belonged “The Minoans”.

The palace had a wide range of functions. It was an administrative centre and a place for religious activity; it had storerooms and it had artisans' workshops. The palace was architecturally monumental and highly decorated with vivid frescos depicting processions, animals, and games. And the palace was a centre of power. Knossos, along with other Minoan palaces such as Malia and Phaistos, was at the top of a hierarchy of settlements across the island which flourished in the Middle and Late Bronze Age.

Though flourishing, Knossos was never immune from threat, whether from piracy, war, or earthquake, and on several occasions suffered serious damage. One of these, in the eighteenth century BC, saw the destruction of the "Old Palace" only for the Knossians to redesign the site and begin construction of the "New Palace".

The New Palace too suffered a destruction in the fifteenth century BC and was rebuilt with minor changes to become what we call the "Final Palace", with new people from mainland Greece perhaps now in charge. The Final Palace would itself later be damaged too, and in the thirteenth century BC the palace was abandoned.

Most of the ruins we see at the site today belong to the New Palace or, in places, to its similar successor the Final Palace. We also see, however, the controversial efforts by Sir Arthur Evans to rebuild and restore sections of the site, to present them as he thought they would have been in the time of the New Palace. The value of these reconstructions is apt to provoke heated debate amongst archaeologists, but they certainly provide an insight into Evans' vivid vision of the Minoan world, albeit a subjective and speculative one.

Between the ruins and reconstructions the visitor to the site would be forgiven for assuming that this window of time in the Late Bronze Age was the extent of Knossos' history, a glorious few centuries followed by a three thousand year or so wait to be discovered again, but this wasn't the case at all.

Life in the Early Iron Age

Not long after the palace itself was abandoned in the thirteenth century, a new phase of settlement was established to the west in outer buildings that Evans called the "Little Palace" and the "Unexplored Mansion". This settlement continued into the twelfth century and beyond, through the gradual end of the Minoan Period and the transition from the Late Bronze Age to the Early Iron Age.

The main evidence of continued occupation of the area in the Early Iron Age, however, was a burial area to the north, the Knossos North Cemetery (Coldstream and Catling 1996). Over 100 tombs received over 600 interments here from the eleventh to seventh centuries. The cemetery was newly established in the late eleventh century but the burial practices, including warrior burials in pit-caves, and family burials in pit-caves, shaft graves, and chamber tombs, were broadly a continuation of Late Bronze Age practices.

In the tenth and ninth centuries, there was a growing tendency towards cremation in chamber tombs, and by the mid-ninth century the deposition of urn cremations in chamber tombs had become established as the typical practice for adult burials (Coldstream 1998, p. 58).

This coincided with an increase in the number of tombs, and by supposition a growth in the settlement population.

Surveys and excavations carried out by the Knossos Urban Landscape Project have supported the hypothesis of a growing settlement at Knossos in the Early Iron Age, with a “wide scatter of Early Iron Age material” indicating a settlement area of around 40 hectares (Kotsonas et al. 2012, pp. 7-8).

Many of the tombs coming into use in the latter half of the ninth century were of a larger size than was really required, even for the deposition of numerous cremation urns. The British archaeologist and art historian Nicolas Coldstream proposed the possibility that at least five of the tombs were not in fact new, but were Bronze Age tombs, previously used for inhumations, emptied of all contents and reused.

If the other tombs were indeed new, they at least imitated the design of the Late Minoan types. And this wasn't the only recycling taking place. Coldstream also notes the presence of Late Minoan larnakes (see the featured image at the top), small terracotta coffins from fourteenth and thirteenth centuries, which in the ninth century were reused for child inhumations (Coldstream 1998, p. 58). They were perhaps discovered in the very tombs which were being reused and imitated.

Meanwhile, though a settlement area was growing to the west amongst some outer buildings of the former palace, the main palace complex and the large open court at its centre were not reoccupied. Archaeologist Mieke Prent emphasises Evans' observation that fragments of Late Bronze Age frescos were found amongst Iron Age excavation levels, indicating that centuries after the Final Palace went out of use its architecture and decoration remained visible (Evans 1930, p. 171; Prent 2003, p. 82). The evidence suggests a largely undisturbed mass of surviving ruins surrounding the Central Court.

The Early Iron Age inhabitants of Knossos were therefore living in what we may call a “landscape of memory”: they lived amongst prominent reminders of the past, a landscape shaped by surviving monuments and structures and imbued with the collective distant memories of a bygone era.

Before the emergence of writing we cannot know precisely what they thought about this distant past. The poems of Homer suggest that oral tradition preserved at least some knowledge of the Bronze Age, and that this surviving knowledge morphed into a broad cultural memory of a “heroic” era, but it is unwise to attempt to “backdate” specific memories into this pre-literate society. It is possible, however, to observe that the Early Iron Age inhabitants of Knossos interacted with their “landscape of memory” in two rather distinct ways.

On the one hand, they approached the Bronze Age remains with “purposeful curiosity” (Prent 2005, p. 518). Their homes were amidst the ruins to the west of the palace and in the cemetery to the north they did not hesitate to open, empty, and reuse Minoan tombs. Their curiosity even went as far as studying and imitating these tombs, and in times of tragedy they chose to bury their children in “antique” coffins.

On the other hand, the Central Court and the palace itself seem to have been left deliberately undisturbed in the Early Iron Age, even as peripheral buildings were being reused and reoccupied. Evans interpreted this as indicating a recognition of the palace as sacred in some way (Evans 1928, p. 7).

It is possible that there was a specific memory of the Central Court as the primary arena for public ritual in the Late Bronze Age, but it is more likely that a cultural memory of the court's significance was prompted by the remarkable setting of an "untouched" space surrounded by extensive ruins. In any case, in contrast to the tombs of the north cemetery and the ruins to the west, the former palace seems largely to have been "out-of-bounds".

The special significance of the palace and the Central Court is revealed further by the limited activity that did take place there.

There was no residential reoccupation, as there was amongst the ruins to the west, nor burials, as there were in and around the Minoan tombs to the north.

Rather, a new cult was initiated amidst the ruins of the Central Court and the West Wing of the palace in the ninth century. Evans noted in the first reports from the excavations that in the Central Clay Area, part of the Propylaeum in the West Wing, there was an accumulated layer of ash and bones, "possibly of a sacrificial nature" (Evans 1900, p. 17.). This has come to be associated with deposits discovered in the south-west corner of the Central Court, the closest area of the court to the West Wing Propylaeum, with votive offerings dating from the ninth century right through to the Classical period (Coldstream 2000, p. 286; Prent 2004, p. 416).

Coldstream notes with regret that in his efforts to restudy the material the early votives remained "elusive" (Coldstream 2000, p. 286). Nonetheless, Evans reports the discovery of ninth and eighth century pottery, whilst Hartley, a member of his excavation team, notes in a review of the material that it included fragments from drinking vessels and a krater (Evans 1928, pp. 5-7; Hartley 1931, pp. 92-93), i.e. a large bowl for diluting wine with water. Hartley further reports the presence of two animal figurines, thought to date to the latter half of the eighth century, whilst Coldstream includes a bird-shaped askos (a kind of small jug) found in the area, which he considers to be a votive offering (Coldstream 2000, p. 286; Hartley 1931, p. 108.).

Some inferences may be deduced from the evidence that is available.

The layer of ash and bone is a clear indication that the cooking and consumption of meat was a part of the activities, and the discovery of fragments of cups and a krater show that this was duly accompanied by communal drinking.

Furthermore, it seems that deposition of votive offerings was of secondary importance. Regardless of the "elusive" nature of the material today, the fact that Hartley only recorded two animal figurines suggests that if any other early votives were found, they seem neither to have been numerous nor noteworthy. Rather, it was drinking and the cooking and eating of sacrificial meat that were the primary features of these rites.

A further consideration is that the respective locations of the ash layer and the ceramic deposit imply a two-stage process. The animal sacrifice took place deeper within the actual ruins of the West Wing of the palace, whilst the consumption that followed was in the more visible open space of the Central Court.

Interpreting the evidence

So what are we to make of this assembled evidence? The expansion of the north cemetery in the tenth and ninth centuries implies a growing population, an interpretation supported by the work of the Knossos Urban Landscape Project. The use of new and reused monumental tombs for some burials in turn implies that during this expansion there was growing social stratification in the community at Knossos.

Taking these two points of evidence, Coldstream posits the emergence of a small group of powerful families wishing to “associate themselves with the ‘heroic’ past” (Coldstream 1998, p. 60). The opportunity to reuse a grand Minoan tomb, or to instigate the construction of an imitation, both required and reinforced status.

The cult, meanwhile, was the first reuse of the main palace site since the thirteenth century. The motivation behind this return may be related to these changing burial patterns. Prent proposes that the cult of the Central Court may have been established in the ninth century by the same emerging elites forging a connection with the past through their reuse and imitation of grand Minoan tombs.

Ritual dining and drinking served as a tool both to forge bonds between elites and to reinforce elite exclusivity – some had the status to take part and others did not. A “privileged association with the past” would engender the unity and exclusivity of emerging aristocratic families (Prent 2004, p. 417).

Furthermore, the two-stage process of the cult activity may be significant. The progression from the ‘secrecy’ of the sacrificial area within the ruins of the West Wing to the conspicuity of drinking and dining in the open space of the Central Court would have served to reinforce the distinction between participants and non-participants, between the elite and the non-elite.

Closing thoughts

We started with the question I asked to visitors at archaeological sites: “What made you want to come here?” And we can ask a similar question to the people of ninth-century-BC Knossos. They had been burying their dead in the vicinity of Minoan tombs for generations without apparently showing much interest in them. They had likewise lived on the outskirts of the former palace for centuries, in which time its ruins had never been significantly obscured, and yet they had kept away. What changed?

In exploring the engagement of past societies with their cultural memories, we must always address two questions. First, what is it in their present society that prompted them to seek a connection with the past? And secondly, what is it about the past that they sought to connect to the present?

Knossos in the ninth century was a changing society. The population was growing and social hierarchies were emerging. The memory of a shared history could provide a sense of unity to a community at risk of fracturing and simultaneously confer legitimacy on an elite whose authority was in its infancy. The physical vestiges of that shared history were

right there on their doorstep, both grander tombs than they were accustomed to using and the ruins of an architectural complex far beyond their present capabilities.

Though, as mentioned, we should refrain from trying to identify specific myths in a pre-literate society, oral tradition seems to have forged a broad cultural memory of the Bronze Age as a “heroic” era, and the tombs and ruins of the Minoans matched such expectations. By reusing and imitating Minoan burials and by granting themselves privileged access to the heart of former palace, the emerging elites associated themselves with this glorious history.

Modern visitors may talk about ruins being ineffably “special”, but in the example of Early Iron Age Knossos we see that they can also be symbolic, powerful, and political.

Further reading

Suggestions for further reading are listed below:

- S.E. Alcock and R.M. Van Dyke (eds), *Archaeologies of Memory* (2003).
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M. Prent, *Cretan Cults and Sanctuaries* (2005).

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Please visit the site: <https://www.ancientworldmagazine.com/articles/landscape-memory-knossos-early-iron-age/> [Go there for pix]

AMERICAN ARCHEOLOGIST ANNOUNCES LOCATING UNDISCOVERED PYRAMIDS IN EGYPT, BY MUSTAFA MARIE

The British newspaper, Express, published a report about an American archaeologist that announced she had found two sites of undiscovered pyramids in Egypt, thanks to satellite images.

The American archeologist added that the two sites are located along the Nile basin, 90 miles apart, and that both of which contain unusual hills.

Furthermore, the American archeologist has strangely claimed that she has spent 10 years studying Google Earth to locate the two lost pyramids in Egypt and revealed that one of these two pyramids is three times the size of the Pyramid of Cheops, the largest of the Great Pyramids of Giza.

The first site is located next to the Nile in Upper Egypt, 12 miles from the city of Abu Sidhom, and contains a four-sided shape with a width of 140 feet.

The second site is located 90 miles north and includes a triangular plateau with a width of 620 feet, that is, nearly three times the size of the Cheops Pyramid in Giza, making it the largest discovery ever.

According to RT, the archeologist wrote on Google Earth Anomalies in 2012, "After careful examination of the composition, this hill appears to have a very flat surface and has formulated an oddly symmetrical triangle that has severely eroded over time. The second site contains a distinct square center, which is very unusual for a hill of this size and looks semi-pyramid like when seen from above. It is very clear what the sites may contain, but field research is needed to verify that they are in fact missing pyramids."

James Harrell, professor of archeology at the University of Toledo, told Life Sciences, these discoveries are examples of natural rock formations that may be confused with archaeological features provided there is no burden on any archeology or geology; in other words, the pyramids are only wishful thinking by an ignorant observer with excessive imagination.

Please visit the site: <https://www.egypttoday.com/Article/4/88740/American-archeologist-announces-locating-undiscovered-Pyramids-in-Egypt>

ARCHAEOLOGY & THE BREAD BAKING CRAZE?

As coronavirus social distancing wears on, my social media feeds have changed. Travel photos, parties, and concerts have disappeared, replaced by photos of scallion ends sprouting in a glass on a windowsill and crusty homemade sourdough with the perfect rise and crumb. Recipes on my favorite food blogs are different now too, emphasizing slow-cooked dry beans and simple pantry staples.

Why is a pandemic changing how some people eat in this way? And is there a chance any of these changes will persist after the threat of COVID-19 recedes?

Archaeologists study cultural change over deep time. Fads that pop up for a few months and then disappear may leave behind little evidence in the slow accumulation of household trash over centuries, and thus remain invisible to archaeologists.

Yet longer-term shifts in cuisine can be discerned by archaeological analysis and can shed light on the social, political, and economic circumstances that shaped them. Looking at the history of change—and continuity—in past cuisine helps us understand why many Americans are so obsessed with baking bread right now, and whether it will last. Bottom of Form

My archaeological research uses cuisine as a window into the impact of imperial conquest on rural communities. About 800 years ago, the Chimú Empire expanded along Peru's dry desert coast and conquered the Jequetepeque Valley, located over 400 miles north of the modern capital, Lima. Under Chimú rule, rural farmers faced increased demands to produce staples like corn and cotton. My archaeological excavations in the village of Pedregal, a few miles from the Chimú administrative center, show that farmers processed more of these staples, and fewer wild foods like fish or foraged plants, after the Chimú conquest.

Despite this shift in production, my work shows that their diet and cuisine remained remarkably stable.

Diet and cuisine are two different things. Diet refers to the set of foods we eat. Cuisine is broader, encompassing cultural ideas about how to prepare, share, consume, and understand these foods. Studying past diet tells archaeologists what plants and animals people ate; studying past cuisine reveals something about recipes, meals, and cooks.

Under Chimú rule (architecture shown here), ancient rural farmers in what is now Peru spent more time producing corn and cotton. Gustavo M/Flickr

At Pedregal, while the proportions of wild and farmed foods changed, the overall set of ingredients stayed the same. The community faced new labor demands after imperial conquest—people spent more time farming, and corn and cotton require intensive work to process into food and fiber. Yet farming kitchens were able to accommodate the new labor demands that resulted from imperial conquest without sacrificing daily household rhythms or culinary traditions. Cooks continued to use the same kinds of cooking pots

and ceramic serving bowls to prepare shellfish from nearby shores, and to leave burned offerings of corn under the floors of their kitchens.

Pedregal villagers left no written records. But I believe that the continuity in cuisine and other household traditions that I have seen in the archaeological data could reflect deliberate and creative attempts to preserve cultural identity and buffer the impact of Chimú conquest. The rhythms of domestic life might have actively preserved a sense of stability and social cohesion even as life outside the home changed.

Periods of stress and change can prompt people to hold on to their diets and culinary traditions, as these rural farmers did in Pedregal, as a way of buffering uncertainty and upheaval. In other cases, social upheaval prompts the abandonment of some daily household practices and the adoption of new ways of cooking and eating—this had happened in the Jequetepeque Valley centuries before the Chimú conquest, when the Moche civilization collapsed.

Which way will the upheavals associated with the novel coronavirus pandemic send modern societies? Are American cooks investing energy into baking as a way to create comfort and ritual, or shifting to accommodate new social and economic conditions? And will any of these new domestic activities persist when the pandemic subsides?

Many scholars believe that both diet and cuisine are generally resistant to change. We develop preferences for flavors, dishes, and meals as children and, however adventurous we become as adults, certain things just taste like home. We internalize cultural and culinary values that tell us what a satisfying meal looks like or when it is appropriate to eat certain foods. These deep culinary preferences reflect, sustain, and pass along dimensions of our complex social identities, such as class, politics, ethnicity, religion, and culture.

Archaeologist Patricia Crown has traced how people ate in the U.S. Southwest over the past 10,000 years. She notes a few big dietary shifts, sparked first by the changing environment at the end of the last ice age, when people began to eat less big game and more seeds and nuts, and later by the introduction of domesticated corn, beans, and other plants. These dietary changes essentially reflected the availability of particular plants and animals due to climatic and cultural shifts. The basic outlines of a pre-Hispanic diet in the region were set after about 1,500 years ago.

Cuisine, however, continued to change in more complex ways, not necessarily related to the introduction of new foods. Larger grinding stones at archaeological sites across the region after A.D. 500 suggest that grinding corn into meal became a bigger priority, for example. The adoption of griddles or comales around A.D. 1200 indicates that cooks were more interested in toasting tortillas or paper-thin piki bread than making stews in clay pots. What prompted these shifts?

Crown explains these culinary changes from an economic perspective that views cuisine within a larger system. Cooks prepare food using available cooking tools and fuel within the broader social organization of labor that defines who does what kind of work. As cooks come up against perceived limitations or opportunities in one part of the system—a food shortage, a tool that needs expensive maintenance, a new cooking technology—they adjust to compensate. As many people in the U.S. Southwest settled into permanent

villages after A.D. 500, the regional population increased, placing stress on limited food and fuel supplies. Periods of drought further stressed these resources.

Grinding corn into fine meal and cooking it quickly on a hot griddle allowed cooks to release the nutrients in corn while conserving fuel.

However, compared to boiling corn and other ingredients into stews, it was incredibly labor intensive. Crown notes that the skeletons of women who lived at this time reveal the physical impact of kneeling in front of a grinding stone for hours each day. Cooks apparently understood the limitations—scarce fuel, large hungry families, a finite harvest—and decided to sacrifice their own time and energy to maximize nutrition. That sparked a culinary shift.

The nature of work in the home has changed. It should be no surprise that the way we cook has also shifted.

This logic provides one explanation for the explosion of sourdough bread on my Instagram feed. Self-isolated cooks perceive shortages of yeast and lack access to their usual range of prepared foods. Layoffs, furloughs, and economic uncertainty pose economic constraints. Cooks have more time at home to feed sourdough starters, prepare dough, and bake bread. The social organization of labor has changed under quarantine too. Household units are more isolated and self-contained by social distancing. Work, school, and leisure all take place at home for many families, collapsing distinctions between public and private spaces, and between career and family labor.

Essentially, the nature of work in the home has changed. It should be no surprise that the way we cook has also shifted toward labor-intensive recipes that transform inexpensive pantry items like flour and salt into delicious (and photogenic) sourdough loaves.

Economic perspectives like this one are useful, but they don't tell us much about the social meaning of cooking particular foods.

Archaeologist Christine Hastorf investigated cooking and domestic life at the Neolithic village of Çatalhöyük, in modern Turkey. For over a thousand years, between 7400–6200 B.C., the community of Çatalhöyük remained remarkably stable. People ate a healthy diet of domesticated wheat and goats, foraged nuts and plants, and deer, game birds, and fish from the surrounding landscape. Archaeological investigations have recorded many microlayers of plaster, one on top of another, showing that people repeatedly renewed and remodeled their well-swept houses. Houses were so tightly packed together that people had to walk across their neighbors' roofs to enter their own homes.

Hastorf suggests that repetitive domestic practices such as cooking and cleaning probably helped to promote social cohesion and stability over the long term at Çatalhöyük. People acted out the social order, day after day, and in so doing, they reinforced and perpetuated it.

Despite this overall sense of stability, a few cuisine changes occurred at Çatalhöyük over the long life of the community. Early in Çatalhöyük's history, cooks boiled liquids by heating clay balls, dropping them into flammable bags or baskets, and removing them when they cooled, a process that required constant tending. As time passed, cooks began

to use clay to make pots that could be set directly over the fire. This new technology would have reshaped cooks' daily routines.

At the same time, the hearths and ovens where cooks spent much of their time became central to the floor plan, occupying more space in the highly decorated main living rooms where ancestors were buried.

Hastorf interprets this change to reflect the increasing centrality of the cooks themselves in the daily life of the household. From Hastorf's perspective, the pivotal place of the cook in daily life and the repetitive rituals of meal preparation and consumption established traditions that helped to reaffirm social identity and make collective sense of the world.

Making sourdough bread creates a domestic rhythm that provides some sense of stability and social cohesion in a time of disruption and anxiety. The colonies of yeast and lactobacilli in sourdough starter need regular feeding. The process of mixing, kneading, fermenting, and baking can take days. Bakers develop a feel for the right textures, timing, and smells to expect at each stage, and a habit of doing particular tasks in the same way. Moving through these sensory and physical rhythms grounds people in a sense of routine and tradition that provides purpose and perspective, all of which are particularly important during a time of social disruption.

The fad of making bread may fade as the economy reopens and the pandemic eventually recedes. New ways of sparking envy among Instagram followers may replace photos of crusty sourdough. Or, the pandemic (along with ongoing climate change) may reveal weaknesses in our global food-supply chain that cause a more permanent shift in our diets. Perhaps we will eat less meat or more local food—including foods literally made at home.

The current global situation may throw a spotlight on inequalities in the social organization of labor, or it may increase the dominance of a few global corporations. As in the ancient U.S. Southwest, cuisine might shift as cooks find themselves responding to new conditions and making new tradeoffs. As they do so, cooks will play a central role in making meaning out of the daily rhythms of domestic life, even if they are no longer making sourdough.

Please visit the site: <https://www.sapiens.org/archaeology/can-archaeology-explain-the-bread-baking-craze/>

SCIENTISTS IDENTIFY ALASKAN VOLCANO THAT MAY HAVE HELPED THE RISE OF THE ROMAN EMPIRE, BY KATIE HUNT

The 10-kilometer-wide crater on Alaska's Umnak Island formed during the eruption of the Okmok volcano in 43 BCE. This massive eruption caused among the most extreme Northern Hemisphere weather conditions of the past 2,500 years.

In the years after the assassination of Julius Caesar in ancient Rome, historical accounts paint a picture of unusual cold, food shortages, disease and famine that accompanied a pivotal moment in Western history.

Historians had long suspected that this unexplained extreme weather could be linked to a volcanic eruption, but they had been unable to pinpoint where or when such an eruption had occurred or how severe it was. Candidates had included volcanoes in Nicaragua, Sicily and Kamchatka in Russia's Far East.

After analyzing ash trapped in ice and other records, an international group of scientists and historians now think that an eruption of Alaska's Okmok volcano more than 2,000 years ago was responsible. The massive explosion created a 10-kilometer-wide crater that is still visible today.

Why a volcanic eruption caused a 'year without a summer' in 1816

"To find evidence that a volcano on the other side of the Earth erupted and effectively contributed to the demise of the Romans and the (ancient) Egyptians and the rise of the Roman Empire is fascinating," said Joe McConnell, a research professor of hydrology at the Desert Research Institute in Reno, Nevada, and an author of the study, in a news statement.

"People have been speculating about this for many years, so it's exciting to be able to provide some answers," McConnell said.

Caesar's stabbing by Rome's senators triggered a power struggle that ultimately ended the Roman Republic, leading to a shift from a more democratic governance to the dictatorship of the Roman Empire. It also ultimately led to Egypt coming under Roman rule.

The study said that crop failures, famine and disease resulting from the eruption likely exacerbated social unrest and contributed to political realignments at this "critical juncture of Western civilization."

"While we can't actually prove how the extreme weather and resulting crop failures, food shortages and epidemic disease contributed to the downfall of the Republic 2,000 years ago, it seems only logical that it must have played a significant role," McConnell said.

A core of ice was used to develop detailed records of volcanic fallout from the Okmok II eruption in 43 BCE.

Cores of Arctic ice

The team analyzed volcanic ash, known as tephra, found trapped in Arctic ice cores taken from Greenland and Russia to link the period of unexplained extreme climate in the Mediterranean with the massive eruption of Okmok volcano on Umnak Island in the Aleutian Islands chain.

"The tephra match doesn't get any better," said Gill Plunkett, co-author and a reader at the School of Natural and Built Environment at Queen's University Belfast. The study published Monday in the journal Proceedings of the National Academy of Sciences.

Alaska's Umnak Island showing the huge, 10-kilometer wide crater (upper right) largely created by the 43 BCE Okmok II eruption at the dawn of the Roman Empire. Landsat-8 Operational Land Imager image from May 3, 2014.

"We compared the chemical fingerprint of the tephra found in the ice with tephra from volcanoes thought to have erupted about that time and it was very clear that the source of the 43 BCE fallout in the ice was the Okmok II eruption."

The eruption produced volcanic fallout that lasted two years, the study said, lowering temperatures in the Northern Hemisphere by up to 7 C (13 F).

The change in temperature can be seen in tree ring records in Scandinavia, Austria and California, the study found, with one bristlecone pine, in California's White Mountains, showing a frost ring that suggested temperatures below freezing in early September 43 BCE.

Similarly, climate records from caves in China also showed temperature drops in the three years after the eruption. The researchers' models suggested it would have been much wetter than normal during the summer and autumn that followed the 43 BCE eruption of Okmok, which is still active today and last erupted in 2008.

Records of past explosive volcanic eruptions can be found in Greenland's ice sheet and accessed through deep-drilling operations.

"In the Mediterranean region, these wet and extremely cold conditions during the agriculturally important spring through autumn seasons probably reduced crop yields and compounded supply problems during the ongoing political upheavals of the period," co-author Andrew Wilson, a classical archaeologist at the University of Oxford, said in the statement.

"These findings lend credibility to reports of cold, famine, food shortage and disease described by ancient sources."

The study noted that natural disasters like a volcanic eruption are known to create a "state of exception in which business as usual becomes unfeasible and political and cultural norms are suspended, thereby providing room for rapid social and political change."

The researchers also identified a smaller and more limited volcanic eruption in 44 BCE at Mount Etna in Italy.

They said this eruption could help explain unusual phenomena described around the immediate time of Caesar's death by writers like Virgil — solar halos, the sun darkening in the sky or three suns appearing in the sky that at the time were interpreted as omens.

Please visit the site: <https://www.cnn.com/2020/06/22/world/volcano-ancient-rome-scn/index.html>

FOSSILS SHOW 1ST INTREPID HUMANS LEFT AFRICA 200,000 YEARS AGO FOR AN ICY ISRAEL, BY AMANDA BORSCHEL-DAN

Discovery of fossils of cold-climate rodents alongside remains of region's 1st modern humans shows they arrived from hot cradle of Africa during Ice Age, but were able to adapt.

Tiny rodent fossils found in a cave on Israel's Mount Carmel could shift our understanding of human evolution, indicating that the first venturesome humans who migrated from Africa to Israel 200,000 years ago did so during an Ice Age.

According to a new study published in the Journal of Human Evolution this week, the discovery of fossils from rodents that are only adapted to cold environments — which were found in the same archaeological assemblage as the earliest known record of Homo sapiens outside of Africa — proves that those early modern humans arrived during an Ice Age and yet were able to thrive after leaving the Cradle of Humankind despite the drastically cooler temperatures.

The study's authors say the analysis contradicts the popular theory that the Ice Age delayed human migration between continents. This first sign of human adaptability displays the characteristics that would eventually lead to our species' world domination, said the scientists.

“People who evolved in Africa — in a completely different environment — took this step, which you don't see any other species in world history with the ability to do — to step out of their original cradle into a different environment and be able to survive,” Israel Antiquities Authority archaeologist Lior Weisbrod, the co-author of the study, told The Times of Israel on Monday. “That's what eventually allowed humans to reach every corner of the world.”

The new study charts the first instance of “this unique adaptability,” which appears in a much earlier phase of human evolution than scientists have previously thought, said Weisbrod.

The article, “Early modern human dispersal into southwest Asia occurred in variable climates: a reply to Frumkin and Comay (2019),” was published by Weisbrod and University of Haifa Prof. Mina Weinstein-Evron on June 21.

The study is based on further analysis of artifacts discovered in Weinstein-Evron's 2002 excavation of the prehistoric Misliya Cave, where a 170,000-200,000 year old jawbone was discovered that explosively reset the clock on human migration when published in 2018 by Tel Aviv University's Prof. Israel Hershkovitz and Weinstein-Evron.

Speaking with The Times of Israel in 2018, Weinstein-Evron reminisced that when she and Hershkovitz first drew up plans ahead of commencing the joint dig in 2001, their stated (modest) goal was to look for the origins of the modern Homo sapiens. The

excavations resulted in the discovery of the jawbone, which she dubbed “Miss Lia,” after the name of the cave in the Mount Carmel region.

The region is rife with indications of paleolithic settlement, she said, and during 10 years of excavations, along with the jawbone the team uncovered some 60,000 flint tools, which span the human history of development from chunky primitive hand axes to purposefully knapped, lightweight, technologically advanced projectiles and thin knives.

In the new study, the researchers further extend common wisdom regarding man’s migration and state that these bold early humans entered a climatic unknown when migrating north from Africa. Ice Age Israel would have presented a much different biosphere, said Weisbrod in conversation with The Times of Israel on Monday, including much lower temperatures and different flora and fauna than the Cradle of Humankind.

Illustrative: Misliya cave in Israel, where a jawbone complete with teeth was discovered dating to 177,000-194,000 years ago. (Mina Weinstein-Evron, Haifa University)

The evidence of thriving, long-term human settlement in the Misliya Cave shows that these first migrators from Africa overcame climatic obstacles and successfully adapted to new conditions.

The researchers base their theory upon thousands of rodent fossils — most under 1 millimeter in size — that were gathered in the same settlement layer in the Mount Carmel cave. Weisbrod discerned that of the 13 rodent species present, voles (*Ellobius lutescens*) are only able to live in cold climatic conditions.

Ellobius lutescens (vole) lived during the Ice Age, but disappeared from the Levant more than 150,000 years ago. Today, explained Weisbrod, they still live in colder regions such as the Zagros Mountains of northwestern Iran and in the Caucasus Mountains.

Ice Age Israel, Weinstein-Evron told The Times of Israel on Monday, could perhaps better be labeled an “icy age.” Broadly speaking, she said, she estimates the temperature would have been circa 5 degrees Celsius (41 Fahrenheit), which would allow for cohabitation of other warmer climate species that were found in the cave assemblage with the cold climate voles. Other animal remains found in the cave were used for food, including auroch — extinct cattle — and other deer steaks, hares, ostrich eggs and wild boars.

Excavated area of Misliya cave, where a jawbone complete with teeth was recently discovered dating to 177,000-194,000 years ago. (Mina Weinstein-Evron, Haifa University)

Weisbrod said that the vole would have had some plasticity to its climatic niche in its southern migration toward the Levant — but that, aside from the temperatures lowered by some five degrees, the region at that time would have been vastly different from the arid land we are accustomed to.

“If we were transported back in time, we would not recognize it,” Weisbrod said, mentioning the existence of gigantic lakes spanning from the Sea of Galilee to the Dead

Sea. The Ice Age in the Levant made the region “more different and challenging” for the first migrants from Africa, he said.

“With the help of fossils, one can determine under what conditions ancient humans could have survived in different prehistoric times, and at what rate human adaptability evolved in order to adjust to diverse climatic conditions,” said Weisbrod in the IAA press release.

The question now remains: If early man was able to adapt to a new climate, what kept them in Africa for so long?

“If the climate wasn’t the factor that initially delayed our ancient ancestors, researchers will have to examine other explanations, including those related to population demographics, interactions with other human species, or the late emergence of technological innovations,” said Weinstein-Evron in the IAA press release.

Please visit the site: <https://www.timesofisrael.com/fossils-show-1st-intrepid-humans-left-africa-200000-years-ago-for-an-icy-israel/>

THE AFTERLIFE OF SHIPS IN THONIS- HERACLEION: RECYCLING, ABANDONMENT, AND RITUAL SACRIFICE AT AN EGYPTIAN PORT, BY DAMIAN ROBINSON

What do you do with a ship at the end of its life? Today, many of the ships that are at the heart of our interconnected maritime world end their driven onto a beach and cut up by hand to be recycled. In a few short weeks a giant vessel can be reduced to nothing as its owners gain one last pay day and rid themselves of something that was unwanted, no longer economically viable, or perhaps not even safe.

Ancient seafarers would have had exactly the same choice about what to do with their old ships, recycling timbers for use in new vessels, in buildings, or just for firewood. Some ancient ships, however, survived this ‘cull’ and entered the archaeological record through a variety of different formation processes. In the Egyptian port of Thonis-Heracleion, for example, old ships and boats have been found abandoned, reused in infrastructure, and even sacrificed to the gods.

Thonis-Heracleion was located at the end of the western most navigable branch of the river Nile, where its waters met the Mediterranean.

Initially a frontier post guarding this maritime gateway into Egypt, the port rose to become its most significant emporium in the Late Period where traders from the cities of the Greek world mingled with those from the Achaemenid Empire. Following the foundation of Alexandria and the transferral of trade there, life in Thonis-Heracleion continued, centred around its temples and their cycles of festivals. This came to an abrupt halt sometime around the end of the 2nd century BCE in a natural disaster that destroyed large parts of its main temple, a catastrophe from which the city never recovered as it slipped beneath the rising waters of the Mediterranean. Since its rediscovery in the late 1990s by the underwater archaeologist Franck Goddio and his team from the European Institute for Underwater Archaeology, the site has been systematically examined with some truly amazing results.

Amongst these are the discovery of over 70 ancient ships during survey work in the port and its basins, with examples dating from the 8th to the 2nd century BCE.

It is the largest group of vessels to be found in the ancient world and a fantastic resource to examine aspects of Egypt’s nautical past.

Originally, we thought that these ships were simply wrecked, coming to a variety of catastrophic ends. This certainly seems to have been the case with ship 61, for instance, which was tied up at a quayside at the moment when the main temple of the city collapsed, swamping the ship beneath the debris.

From the detailed excavation of other vessels, however, it became clear that the majority of them entered into the archaeological record through a variety of different processes.

Simply, when a ship is wrecked it sinks along with its contents, or at least those elements of it that don't float away. The things that go down with the ship usually entail both the objects that the crew would have used onboard, as well as any cargo it might have been carrying.

Ships that are abandoned or reused, however, present very different archaeological signatures from a wreck. Their last cargoes would have been removed and their crew would have taken with them their personal belongings or anything else that would be useful (or saleable).

This process can clearly be seen in the excavated remains of ships 17 and 43, which when excavated were found to be without any in situ material culture that could be directly associated with them. Indeed, all that we found was the sort of general trash that washes around on the bottom of this busy harbour. As excavations continued, it became apparent that ship 17 was also surrounded by 14 long wooden piles that were driven up to 3 m into the harbour bottom. Clearly someone did not want this ship to move.

The reason was that the vessel was tethered into place at the end of a jetty in order to extend its length, perhaps out into deeper water. It would seem that the structural integrity of the hull was not breached and that it would still have floated, allowing the new jetty to rise and fall with the Nile flood and so to be used throughout the year.

A similar reuse of an old hull can be seen in the case of ship 43.

Again, the hull appears to have been left watertight and it was then ballasted with local stone and tethered into place alongside another identically sized hull. Other pairs of ships, of the same size, type and dating to the same period, were found close by ship 43 leading to the suggestion that it formed part of a pontoon bridge that would have been used to link up some of the different islands that formed the settlement of Thonis-Heracleion. Again, the beauty of building a pontoon bridge is that it too could rise and fall with the yearly cycle of the river.

A very different process of deposition can be seen with ship 11. This small vessel was found lying across the western end of a waterway where it was deliberately scuttled through the removal of a piece of the keel.

While boats can be deliberately sunk to get rid of them – as certainly happened in Thonis-Heracleion's nearby ship graveyard – this most commonly occurs in a quiet part of the port rather than directly across a busy waterway. Furthermore, excavations surrounding ship 11 revealed a range of objects with a clear ritual character. Stone offering plates complete with pieces of crushed lead and animal bones seem to have been placed into the waters close to the boat from small offering chapels on the banks, along with numerous simpula, long-handled ladles that were probably used in the rituals linked to the celebrations of the resurrection of Osiris during the Egyptian month of Khoiak.

Clearly very different in character from the everyday trash thrown into the waters, these artefacts suggest a more sacred character for this small boat, an interpretation strengthened by its graceful crescentic hull, carefully constructed from the wood of the sycamore fig tree sacred to Osiris. It could be a neshmet barque used in waterborne temple processions and also perhaps in ferrying the dead to their eternal rest. When the time came to replace this vessel, it was likely thought to be too sacred to be recycled or

discarded and instead it was reused in a ceremony to mark an important location within the city’s ritual landscape.

The discovery of ships and boats from ancient Egypt is rare and to find them away from burial contexts in the desert is doubly so.

Consequently, the ships and boats from Thonis-Heracleion have much to say about how Egyptian shipwrights of the Late and early Ptolemaic periods built their vessels, as well as the range of decisions that were made when they reached the end of their working lives on the waters of the Nile.

Damian Robinson is Director, Oxford Centre for Maritime Archaeology and Associate Professor of Maritime Archaeology at the Institute of Archaeology, University of Oxford.

Please visit the site: <http://www.asor.org/onetoday/2020/06/afterlife-ships> [Go there for pix and better format]



ARCHAEOLOGY BREAKTHROUGH: HOW NASA SATELLITE EXPOSED 8,000-YEAR- OLD ‘LOST CIVILISATIONS’, BY CALLUM HOARE

Archaeologists were able to uncover more than 14,000 settlement sites in northeastern Syria thanks to help from satellite technology from NASA's Shuttle Radar Topography Mission.

The small communities were hiding in the overgrown landscape of the Middle East, but scientists say they hold vital clues to ancient civilisations that once inhabited this area. By combining spy-satellite photos obtained in the Sixties with modern satellite images and digital maps of Earth's surface, the researchers created a new method for mapping large-scale patterns of human movement. The approach, used to map sites spanning eight millennia across 23,000km of northeastern Syria, was published in the Proceedings of the National Academy of Sciences.

Jason Ur, an archaeologist at Harvard University and study co-author, said in 2012: "Traditional archaeology goes straight to the biggest features – the palaces or cities – but we tend to ignore the settlements at the other end of the social spectrum.

“The people who migrated to cities came from somewhere, we have to put these people back on the map.”

The discovery helped to uncover long-term trends in ancient movement in the area, allowing scientists to learn more about our ancestors.

Graham Philip, an archaeologist at Durham University, added: “This kind of innovative large-scale application is what remote sensing has been promising archaeology for some years now.

"It will certainly help us to focus our attention on the big picture.”

The satellite-based method analysed a distinctive reflective signature left in the soil by human activity, known as anthrosols.

Formed from organic waste and decayed mud-brick architecture, anthrosols consists of higher levels of organic matter and have a finer texture and lighter appearance than undisturbed soil.

Study co-author, Bjoern Menze, from the Massachusetts Institute of Technology, was able to spot these anomalies thanks to his day job of identifying tumours in clinical images.

Dr Ur added: "You can do this with the naked eye using Google Earth to look for sites, but this method takes the subjectivity out of it by defining spectral characteristics that bounce off of archaeological sites.”

Dr Menze and Dr Ur also used digital elevation data collected in 2000 by the space shuttle as part of NASA's Shuttle Radar Topography Mission.

Surprisingly, the study found that a handful of sites are unexpectedly large given that they are not located near rivers or in areas of high precipitation.

Dr Ur added: "One settlement, known as Tell Brak, for example, is far too large for what one would expect at such a marginal position.

"This is where things get interesting."

Jennifer Pournelle, a landscape archaeologist at the University of South Carolina agreed.

She said: "These findings validate hypotheses I've introduced in southern Iraq, namely that irrigation is an after-effect of urbanisation.

"It's not what enables a city to develop, it's what keeps them going after soil moisture dries up."

Dr Pournelle says that she plans to adopt this method and notes that it offers a valuable way to learn more about large regions, particularly when they are remote and difficult to access because of local conflicts.

Please visit the site: <https://www.express.co.uk/news/world/1302531/archaeology-news-nasa-satellite-lost-civilisation-syria-settlement-found-google-earth-spt> [Go there for pix and map]

WOMEN, TEENAGERS WORKED AS POTTERS IN ANCIENT ISRAEL, SCHOLARS SHOW, BY ROSSELLA TERCATIN

From previous research, it was assumed that pottery manufacturing was mainly carried out by professional potters, proving a certain level of sophistication in the society.

Over 3,500 years ago, a potter finished shaping a new jug in Gath, a settlement in the Judean foothills overlooking the southern coastal plain of Israel. Before firing the vessel in the kiln, maybe the artisan looked at it, even touched it one last time, perhaps feeling proud of the work, without imagining that a couple of millennia later, a group of researchers would not only find the artifact, but also identify the fingerprints on its surface, reconstructing the age and gender of the jug's ancient manufacturer.

As explained to The Jerusalem Post by Bar Ilan University archaeologist Aren Maeir, the director of the excavations at the site known as Tell es-Safi/Gath, some 2,000 or 3,000 people probably lived in the settlement during the Early Bronze Age – between 3,000 and 2,500 BCE –, enough to consider it a city.

“It was probably one of the many Canaanite city-states in the region at the time,” he said. Together with several scholars of the University of Manitoba (Winnipeg, Canada), Maeir co-authored a paper which was recently published in the journal PLOS ONE, analyzing over 100 fingerprints identified on 47 Bronze Age vessels unearthed in the area, in one of the first studies pursuing this venue of research.

“Pottery remains are among the most common findings in excavations because they survive very well through the ages. We studied various aspects of pottery, where it was produced, what was the purpose and how it changed over time. In this particular study we looked at remains of fingerprints left before the vessels were fired in their kilns,” he said. “Fingerprints allow researchers to understand the gender and the age of those who left them, so this analysis offered new insights on who was working in [the] field of pottery at that time,” he added.

From previous research, it was assumed that pottery manufacturing was mainly carried out by professional potters, proving a certain level of sophistication in the society.

“What came out here is that not only men were involved in the production, but also women and teenagers,” the archaeologist explained. “It is an interesting insight into the social structure of the city.”

Based on the findings, the paper suggests that even though pottery-making was a male dominated craft, women and adolescents participated as well. As pointed out in the study, “multiple hands were normally involved in vessel shaping and adults and teenagers had different roles in manufacture” since “two-thirds of vessels in our sample (n = 31/47, 66%) have two or more prints classified in different age/sex categories.”

One of the hypotheses is that those younger artisans were potters-in-training.

“With clear evidence that older and younger potters of the same sex were involved in the manufacturing of wares during the same manufacturing episodes, it is reasonable to infer that older potters would be instructing younger ones in the craft,” the paper continues. The study is the first analyzing ancient fingerprints from pottery in sites in Israel, and not much research in this particular field has been carried out also in other parts of the world, Maeir pointed out.

In the future, the hope is to be able to compare the results with research carried out on artifacts from other periods or from other sites.

Meantime, Tel Gath, which is prominently featured in the Bible in events considered to have taken place several centuries later – including as the city of origin of David’s giant foe Goliath – is still being excavated. Due to the coronavirus emergency, the archaeologists will not be able to return to the field this summer, but the goal is to resume work in 2021.

Please visit the site: <https://www.ipost.com/j-spot/women-teenagers-worked-as-potters-in-ancient-israel-scholars-show-633089> [Go there for pix]
